783

New Orleans Medical

and

Surgical Journal

Vol. 80 JUNE, 1928 No. 12

MEDICAL FACTS, FADS AND FANCIES.

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Presidential Address, Delivered at Annual Meeting of Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

It is, indeed, a rare pleasure and an unusual opportunity to be permitted to address an audience in this, the capital of our state; especially so, because the legislature will soon assemble in its regular bi-annual meeting and it is with the hope that some of my points will ultimately reach our legislative solons that I choose the subject, so pregnant with ideas and ideals, the title of my remarks "Medical Facts, Fads and Fancies." I state "remarks" advisedly, for I fully realize that the good people of Baton Rouge are so accustomed to oratory that I lay no claims in that direction.

When P. T. Barnum said "The American people like to be humbugged," he uttered an altruism, but he might have made it broader and said that "Some people of all times liked humbuggery." We are thankful, however, that Abraham Lincoln spoke the truth when he declared that "you can't fool all the people all the time," and it is upon this fact that my theme is woven, for were this not true, you, my friends, instead of being here tonight, would be worshipping pagan idols, offering burnt offerings and sacrifices or probably—and more likely—be "Eddying" around a Tabernacle or having your bones popped by a chiropractor!

From time immemorial, medical fads and fancies have existed in some forms; whether it be in the ideas of ancient heathens, the beliefs in the middle ages in the incarnate devil, in astrological medicine, in witchcraft, in hoodooism or voodooism of today, in the modern pseudo-religious cults and the modern pseudo-scientific manipulators, it is all the same; "some of the people can be fooled all the time and all of them some of the time"! Although, in the past as at present, physicians were the first to oppose evil, it was also true then, as now, that they had little influence to remove bad laws from the statute books. So, it happened that not until almost the nineteenth century, under the influence of theologians and especially lawyers, were the laws against witches forever abolished. The belief in witchcraft is gone, but the gullible public must be appeased in its desire for something unusual or something mysterious; hence, the numerous cults, fads, quacks and irregular practitioners.

It is my purpose to devote some time to an explanation as to why these illogical schools—if they may be dignified by such a term—exist and flourish in this enlightened age. Outside of the public's curiosity to investigate the unusual innovations and, to use a slang expression, "try anything once," there is a reason wherein the regular medical profession has been much at fault and that is: in its desire to advance science and scientific research, it has, to a certain extent lost sight of the human element and the individual himself; now, however, that we have come to a realization of the error of our ways, we are attempting to take

the public into our confidence, throwing off any veil of mystery which may have hung around us and we see the necessity of PUBLICITY—not individual publicity, but collective publicity. We want you to know what we are doing and why we are doing it; we want you to know what is going on in the scientific research laboratories; we want you to know what diseases are curable and when they are curable; we want to prevent diseases when possible and, when impossible, we want your co-operation toward keeping them from advancing to such a stage that we are powerless. We want you to know that we plead guilty to be altruistic, to the extent that we would rather prevent disease than to treat it, that we are glad to curtail our practices to that extent and we advocate regular health examinations, not with a view of collecting the fee therefrom, but in order to detect defects early and thereby give directions for preventing serious illness. In many communities, free chest clinics are held and many cases of tuberculosis that would otherwise have progressed to an advanced stage are detected early and advice that will lead to arrest of the disease, if the advice is followed, is given gratuitously. In many states, publicity campaigns have been conducted by the medical organizations and the Louisiana State Medical Society is now formulating a program with this end in view.

It will not be amiss, at this point, to review, as briefly as possible, some of the modern progress in medicine—*i. e.*, in REGULAR medicine—and then to contrast it with what the FADS and FANCIES of today have not done. Modern progress in medicine might rightly be dated from the discovery of the microscope by Antonius van Leeuwenhoeck, who lived in Holland in the seventeenth century. The next pioneer, to whom we are under an everlasting debt of gratitude, was Edward Jenner, English physician, 1749-1823; he was a pupil and protege of the famous anatomist, John Hunter, from whom many trace the beginning of the awakening of surgery. Jenner's name is famous, as he was the first one to conduct a scientific investigation into the fact then well known in England, that dairy maids, who had accidentally acquired cow-pox, were immune to small-pox; his extensive experiments confirmed this and his treatise, published in 1798, caused vaccination to be introduced into St. Thomas' Hospital and, later, into the British Army and Navy and, subsequently, adopted by other countries. So, Jenner was the pioneer in vaccine therapy and, of course, in preventive medicine. The next shining light was Louis Pasteur, French chemist, 1822-1895, whose name is immortal, partly because he followed up the work already done by van Leeuwenhoeck and Jenner; he worked out the processes of fermentation, which he showed are due to the presence and growth of a micro-organism, which he termed a ferment and, on this account, he is known as the founder of bacteriology. He went further and perfected a plan for preventing the activity of these germs (ferments, as he called them), by heating, and this method is known today as "Pasteurization." Utilizing Jenner's discovery, he carried it further, concluding that, in the various maladies, the infection depended upon the presence of a specific microbe. He was the first to grow cultures of these microbes and learned that, after the germs had been transplanted several times, they become attenuated; he used these attenuated or weaker germs to prevent cholera in fowls and anthrax in cattle and sheep. Finally, he went a step further with this and applied it to rabies—so that, today, we have the Pasteur treatment for the prevention of hydrophobia throughout the world!

We referred to surgery before, but, previous to the nineteenth century, it could make little progress, as anesthetics were unknown. To Crawford of Georgia and to Morton of Massachusetts we owe the discovery of chloroform and ether, respectively. Humanity, therefore, is greatly indebted to these two Americans—one a physician and the other a dentist, but both

"regulars"—for, by their work unmeasurable pain has been saved and surgery has been given great impetus. It owes much of its progress to such men as Lord Lister and Sir Frederick Treves in England, who did much to help along the transformation from embryonic to well-developed modern technique; Moynihan in Scotland, the gall-bladder and liver expert; Kocher of goitre fame, in Switzerland; Keen of Philadelphia, who profiting by knowledge gained by vivisection, proved to the world that brain injuries may be successfully operated upon; Cushing in Boston, who has dared to remove brain tumors, formerly inoperable; Murphy, the Mayos and Crile, who have contributed volumes and, last but not least, our own Matas, whose work has proven him most versatile, but especially his pioneer methods in curing aneuryms (incomplete blood vessel ruptures) have assured him a place high among the benefactors of mankind.

In medicine, we should think of the Germans, von Behring, who gave us diphtheria antitoxin, whose lead has revolutionized the treatment, not only of this dreaded throat disease, but also many other diseases treated by sera, for which we are thankful today; Robert Koch, discoverer of the tubercle bacillus; Wassermann, who worked out a reliable and scientific diagnostic blood test for syphilis; Ehrlich, who explained much about immunity to disease and, later, gave to the world his great chemical compound, salvarsan, known as "606"; the Englishman, Sir Almoth Wright, originator of modern vaccine treatment; the Americans, Reed, Carroll, Lazear and Agramonte, who proved the transmissibility of yellow fever by the mosquito; the Canadians, Banting and Best, who gave the long sought insulin to the world, conferring thereby untold benefit to the millions of diabetics; the Dicks of Chicago and Dochez, of New York, who worked out the scarlet fever serum; Trudeau and other pioneers for showing the way for properly combatting the "great white plague"; Roentgen, who gave us the Roentgen-ray, and the Curies, who discovered radium, have earned our undying gratitude. Even with cancer, we are making progress and research work is being done all over the world, hoping to unravel some of its disputed points; for instance, Dr. Maud Slye of Chicago claims to have proven, beyond all doubt, that cancers in general are not contagious, but hereditary, she having experimented with mice and mouse tumors for nineteen years. You are all familiar, I am sure, of the warnings to have cancers diagnosed early—when they are curable; you are more or less familiar, too, with the modern preventive treatment of many baffling diseases (especially heart disease) by removing all foci of infection and I might add that, in spite of this, more are dying from heart disease today than from any other cause. A decade ago, tuberculosis led in the mortality table; but now, with our improved knowledge of handling this scourge, it carries off annually in the United States not more than one-third as many as go by the heart route.

But, why burden you, you may ask, with all these medical FACTS? It is to impress upon you this *one fact:* EVERY ADVANCE IN THE TREATMENT AND PREVENTION OF DISEASE HAS BEEN CONTRIBUTED BY MEMBERS OF THE REGULAR MEDICAL PROFESSION.

How many specific for disease have been given by homeopaths? How much investigative work with cancer has been done by the anti-vaccinationists? How many Kochs or Wassermanns do you find among the osteopaths? How many Matases in the ranks of the chiropractors? What have the Dowieites or the Christian Scientists done to prevent heart disease? NOTHING! Why? Because those capable of doing things for you and for me and for every one else belongs to the regular profession. As stated before, we strive to help you keep well; we believe in prevention and let me recall to you a few instances. Right here in Louisiana, we have seen the culmination of the fight against yellow fever, formerly the dreaded scourge of the South; the work of

regular doctors proved that if you keep the patient protected from mosquitoes, he cannot spread the disease, hence isolation of any suspicious case and the destruction of the particular species of mosquito will prevent an epidemic. Right here in Louisiana, we have seen that terrible "black plague" of the middle ages, bubonic plague, nipped in the bud, so to speak, because regular doctors proved that it is conveyed by rat fleas, and so if you isolate the case from rats and destroy all rats possible, there will be no rat fleas to spread the disease. Through the discovery of a specific serum, you have seen Asiatic cholera wiped out of the Western Hemisphere, and this serum is the result of the finding of the specific germ by regular doctors. Many of you are old enough to remember what killed most of our boys who died in the Spanish-American War; was it Spanish bullets? No; it was typhoid fever, because that was before the days that regular doctors had worked out a vaccine against typhoid. In the late World War, the death rate in the American Army from typhoid was practically nil, for compulsory anti-typhoid vaccination was enforced. Smallpox, formerly so common and so dreaded, has, by general vaccination, improved from the time of Dr. Jenner, become comparatively rare and of much less severity; if general compulsory vaccination against all these diseases could be obtained, these pests could soon be wiped off the face of the earth. Yet there is an organization, known as the "anti--vaccination league," which is still fighting us and you on these proven points; it seems that some people know not what to do with their time and energy—that is the most charitable explanation.

Then we have the Faddists, known as "Anti-vivisectionists"; I have never seen one of them, but am told that they are long-haired men and women. They tell us that we must not torture a brute animal, in the interest of science, as one life is as good as another. They do not seem to know or do not want to know that these animals are well cared for and anesthetized when operated upon; they do not seem to know or do not care to know that much of our present knowledge of diseases and injuries of the brain, as well as diseases of abdominal organs was learned by animal experimentation. It was not so many years ago when a New Orleans boy, then a midshipman in the U. S. Naval Academy at Annapolis, received a severe brain injury in a football game; he was unconscious and his life practically despaired of, but the venerable Dr. Keen of Philadelphia knew from his animal experimentation that there was a clot on the brain and could tell just where it was; he operated upon and cured this young man, Commander Aiken, U. S. Navy, who was saved to his country and later died a hero. I say to you that a life like that is worth more than a million curs, and I say to you that, had not dogs been sacrificed in laboratories in investigations on diabetes, we would not today have insulin, for which a million or more diabetics and their families are thankful. So, why *this* fad?

We are cognizant, I am sure, of the influence of mind over matter and the value, in many cases, of psychotherapy. There is a fad, though, in our land which pretends to prove that all disease is mental and not physical, but which, for some unknown reason, specifically exempts—so I have been told — surgery and dentistry; this is a mystery to me, for, you know, often common stomach-ache is mistaken for appendicitis; I presume, then, that the Christian Scientists must make a very fine diagnosis, often baffling to good physicians. However, be that as it may, I am reminded of the story of the little boy, whose mother was a devout follower of mental science; the two were crossing a field and when the lad saw a bull in the distance, he shielded himself behind his parent's skirt. "Why, I'm ashamed of you," she told him, "Don't you know there is no such thing as pain and that the bull can't hurt you?" "Yes," he admitted tim-

idly, "I know it and you know it, but the bull doesn't know it."

Sometime ago, the New York Medical Journal tersely stated that the real crime of the sect lies not in what they do, but rather in what they do not do. "Suppose a Christian Scientist's own child were playing in front of a fast speeding car and a man standing by did not even stretch out a hand to drag it away, not believing, forsooth, in material measures, but relying solely on the strength of Divine Mind; what would be the Christian Scientist's opinion of that inhuman creature? It is not because he believes in prayer that we condemn him, but because he will not make any effort whatsoever to attain that for which he prays." Can any sane person believe such things as the following from Mrs. Eddy's book, misnamed "Science and Health"? "If the case to be mentally treated is consumption, take up the leading points in this disease; show that it is not inherited and that inflammation, tubercle, hemorrhage and decomposition are beliefs, images of mortal thoughts superinduced upon the body; that they are not the truth of man; that they should be treated as error and put out of thought; then, these ills will disappear. If the lungs are disappearing, this is one of the beliefs of mortal mind . . . . What if the lungs are ulcerated? God is more to man than his lungs; and the less we acknowledge matter or its laws the more immortality we possess . . . . You will never fear again except to offend God and will never believe that lungs or any portion of the body can destroy you." Such rot, my friends, when we consider the great number of lives being destroyed by tuberculosis of the lungs, which has been lessened materially, in late years, not through Christian Science preaching, but through the efforts of Koch, Trudeau, Brown, Pottenger, Durel and others of the regular medical profession!

In other states, these people have been convicted of criminal negligence for their errors of omission; the way to handle them everywhere is to force them to confine their activities to inconsequential cases; why, what do they do, secretly, when they are really ill of body? They consult a physician and usually a regular; I have treated some of them and I know of brother practitioners who have, also. But they go to physicians, *for themselves*, probably "unbeknowingst," like the man, in old saloon days, who had taken the temperance pledge and went into a drink emporium (like they used to have) and called for a "lemon sour"; the bartender asked if he did not wish it spiked; he replied, in a whisper, "Put some whiskey in it, unbeknowingst to me!"

Along very much the same lines, but without the religious element, was a fad which started in France a few years ago and which spread to this country, but of which we hear nothing today; that was the Coué school—sort of a self-hypnotism; he taught that if one could convince himself, by mental suggestion, constantly, that he was getting better, he would, necessarily, eventually get better—a very pretty fancy, which we all wish were practical!

A fancy of some years ago, evidently started in good faith, but which was continued in bad faith—and this one was perpetrated on us by a physician, but fostered by laymen—was the revival of the old idea that a preparation of the turtle tubercle bacillus is a specific for the disease in man. A young German, named Friedman, journeyed to this country, apparently in the interest of science, but really for pecuniary gain, to "sell" this idea to Americans. Promptly, medical authorities in this country scoffed at it, but the gullable laity was attracted by it and he interested many prominent Americans, including the late Wm. J. Bryan, then Secretary of State. But Friedman and his turtle bacillus preparation were but, as our Scientist friends would express it, "beliefs of mortal mind" and have disappeared from view.

All of which shows us that the American people, although liking humbuggery, re-

quire in the long run, to be "shown," as illustrated in the story of the nurse who informed Tommy that the stork had just brought him a little brother, and inquired if he would not like to see the baby; to which Tommy promptly replied: "Naw, but I would like to see the stork!"

Sometime ago, the homeopaths flourished in this country on the ridiculous doctrines of Hahneman that "Similis similibus curantur," the minimized dose, the single remedy, etc.; but this narrow fad or fancy, call it what you will, is not a menace to your health today, for most of those originally homeopaths are now practicing regular medicine. This fact was admitted and deplored by the International Association, meeting in Milwaukee, as far back as 1880. This sect called us "allopaths," which means that we treat one disease or condition by influencing another one in the body. This is wrong, we are not allopaths, but as stated earlier, we are "regulars," taking what good there may be in any and all schools and adopting them for the benefit of our patients.

Every two years, here in Baton Rouge, a sect, a fad or a school, call it what you will, but known as "chiropractors," attempt to get the legislature of our state to pass a law authorizing a board to examine them, with a view of permitting them to practice what they call an art of healing here, as they do in many other states; every time they ask this, we oppose them, and why? The simplest answer is that they have such insufficient knowledge of the elementary branches of medicine that it is unsafe, as a public health measure, to permit people to entrust their lives and health to such faddists. Their fundamental theory that every disease is due to spinal mal-adjustment is unsound and dangerous; in more than one instance, the daily papers have reported fractures of spine due to their manipulations. Dr. George Dock, a fair-minded and broad-minded student of medicine, visited the largest chiropractor school, at Davenport, Ia., and published his impressions. Among his conclusions were: "So one must question whether, as stated in a court decision, chiropractic is an innocent business. No one can object if a healthy or a sick star, either of the opera, stage or screen, a banker, a novelist, or even a physician wishes to be adjusted. The case is different in a child with measles, diphtheria or meningitis, a pregnant woman, or a patient with a malignant tumor," etc. Two years ago, representatives of this school came before your legislative committee and denied that diphtheria, tuberculosis and other diseases are caused by the specific germs, which we all know do cause them; they contended that spinal mal-adjustments are the real cause and that, if these germs are found in the diseases, they are simply scavengers, coming after and not before; this testimony is on the records, ladies and gentlemen. With these few reasons stated, do you not agree with me that they are not harmless? Do you not agree with Dr. Dock when he states that the "case is different in a child with measles, diphtheria or meningitis, a pregnant woman or a patient with a malignant tumor"? Would you want one of these men or women to be licensed and then to get hold of your baby or your friend's baby, with diphtheritic sore-throat and then to manipulate its spine and have you find out that serum would have cured the child, but find this out too late? Or that the meningitis could have been cured with serum if given early, when these people were "adjusting" the spine? Can't you see—I am sure that you can—that it is in the interest of the public that we oppose such a cult? They may try it again this year and we want your active help and co-operation toward keeping them out. The following cheering item from the Pittsburg Medical Bulletin would indicate that these people are rapidly disintegrating, so that even the head of their largest school is willing and ready to quit. To quote: "In addressing a meeting of 500 chiropractors and sympathizers in Philadelphia, Feb. 26, Mr. B. J. Palmer, the

daddy of chiropractors, said: 'Fully 80 per cent of the chiropractors in Pennsylvania are practicing medicine, not chiropractic. This is a sorry fact, gentlemen—we are practicing medicine. During the last year I have been in every state in the Union and this condition exists throughout. My ideals concerning chiropractic were shattered; chiropractic is doomed. You have drifted so far from the basic principles of chiropractic that you have lost your identity and brought the basic science bill upon your heads. Twenty-eight chiropractic schools have closed recently and many others will follow. The supreme courts in seven states have handed down legal injunctions during the last eighteen months, whereby these states are lost forever to chiropractic. I warned Ohio not to compromise; they tried to pass a bill engrossing medical principles and practices; I predicted its failure; it lost by 250,000 votes. There has been $250,000 of chiropractic money spent in California in the last year. You cannot defeat the ends of science; the basic science bills are the buckshot which we deserve for trespassing. When chiropractors preach and practice and try to become physicians, then it is justifiable for medical men to educate the chiropractor. Now, beat that argument, if you can; that is why we are losing right along. This will probably be the last time you will see me as a chiropractor, as I do not propose to lose my good money in fighting against sound arguments.' Incidentally, it is said that the number of students at Mr. Palmer's million dollar school at Davenport has decreased from 3500 to about 300."

The "Basic Science Bill" referred to by Mr. Palmer is one advanced by the American Medical Association, requiring anyone desiring to practice "the healing art" to pass a satisfactory examination in basic sciences of medicines, including anatomy, physiology and chemistry.

A fancy, which is still being pursued in some places, but which has died out in most places, and which created quite a sensation a few years ago, is the Abrams' Electronic Reactions. A man, by the name of Albert Abrams, who had previously really made some worth-while contributions to scientific medicine, proposed to revolutionize medical diagnosis and treatment by some instruments and methods, peculiarly his own. It took with many gullible physicians, but more especially with osteopaths; the unscrupulous took it up for financial gain. Such ridiculous claims as being able to diagnose, not only the disease—and every disease existing—by one drop of blood, taken under certain conditions, with the patient many miles away from the diagnostic machine, but also being able, by this one drop of blood, to tell the color, sex, religion and color of hair of the patient. The instruments were leased, with instructions that they should not be opened by the lessee. The press of organized medicine immediately perceived the impossibility of the claims and condemned the whole business, going so far as to submit to disciples specimens of blood from healthy guinea pigs and other animals and receiving ridiculous diagnoses of many fatal illnesses in man. With Dr. Abrams' death, the delusion faded and now, although there are still some in use, no doubt, by charlatans, we hear very little about it.

Scarcely had the Abrams' noise faded away, however, before we, always eager for something sensational, were told of a new fancy—and this one came with more force than the other; it was not long in getting some of our best men interested and trying it, either as an experiment or as a result of having been "convinced" of its virtues by the originator. We are always eager and always hopeful that specifics for baffling conditions and diseases will be discovered and that is why when a man of scientific attainments, like Dr. Koch of Detroit, announced that he had perfected a cancer cure, which he would not give to the profession generally, until he had convinced himself of its merits, many physicians investigated. We all hoped, although the Journal of American Medical Association promptly

condemned it. Now, that it has failed to give results claimed, in the hands of so many and now that the promoters are spending thousands—and perhaps more—annually in trying to prove its merits, by circularizing every doctor in the country with pamphlets and, now that we note the name of at least one high in the councils of Koch who was also high in the councils of Abrams, we know into what category this once hopeful preparation belongs.

Ladies and gentlemen, I know that I have tired you; I have but skimmed my subject; I have but touched upon some of the fads and fancies in medicine that we have been or are cursed with today; I have attempted to show you that some of them have a place, but they are usually abused; I have attempted to contrast them with medical FACTS and I have tried to stress the point that every real discovery of practical value to the health of mankind has come from the regulars — not the irregulars.

Oliver Wendall Holmes said: "There is nothing men will not do, there is nothing they have not done, to recover their health and save their lives; they have submitted to be half drowned in water and half choked with gases, to be buried up to their chins in earth, to be seared with hot irons like galley slaves, to be crimped with knives like codfish, to swallow all sorts of abominations and to pay for all this, as if to be singed and scalded were a costly privilege; as if blisters were a blessing and leeches a luxury. What more can be asked to prove their sincerity?"

People have done this for ages past, do so today and will continue to do so in the future; but, there is a brighter future for us. In the last few years many problems have been solved, many remain to be solved, and among these are the cure of internal cancer and the prevention of the pandemics of influenza, which sweep over the world every thirty years or oftener.

But remember that although "the American people liked to be humbugged," still "You cannot fool all the people all the time," and as we ourselves become more and more enlightened, take the public into our confidence and educate them on health matters, then, and only then, will all of us be able to properly judge and evaluate new ideas and new remedies; then, and only then, will charlatanry prove unprofitable and we shall be able to say, in unison, "The truth is mighty and will prevail."

LEADERSHIP IN MEDICINE.*

W. C. RUCKER, M. D.,

NEW ORLEANS

I am deeply appreciative of the great honor and opportunity which you have given me today. Yours is a brotherhood which represents the highest and the best in the science of medicine. It is an organization whose ideals are the most lofty and the recipient of this golden key is thus marked as one who has already achieved prominence in the study of the healing art and who is believed to be possessed of potentialities for growth, and ultimate fruition in achievements which shall lessen human suffering, lengthen human life and increase security from disease. The older members of this sodality of science are men who have already gained pre-eminence in the fields which they have elected to grace with their talents. The novitiates are men who, by their scholastic ability, industry and continuity of purpose, have stood out above their fellow students. The older members are already leaders; those newly endowed with the golden key to the noble heritage of healing are potential leaders. It therefore seems appropriate that my remarks shall be addressed to the subject of leadership in medicine.

Admission into the Hippocratic guild carries with it the responsibility over the

*Read before Annual Initiation of Members, Alpha Omega Alpha.

issues of life and death but this does not endow us with omniscience. Absolute truth is unattainable and we are but humble seekers for fragments which, in the millenium, shall be fashioned into the whole body of verity. Therefore, we are servants, not masters in the sacred ministry to broken bodies and disordered minds, in which we will do well to remember always that ours is the duty of laying hands of healing upon sick, world-weary souls. We are the sons of Aesculapius and as such, brothers of the goddess Hygeia, hence upon us is placed the obligation of leading those committed to our care, treading the path to health and lighting it with the lamp of science that those who follow us may not stumble in the darkness of ignorance. Therefore, we ourselves must know the route which is to be followed, its pitfalls and hidden dangers and those bypaths which lead but to disaster. The teaching of medicine is the preparation for this holy guideship and life for us should be one long curriculum for the learning of the roads which reach from injury and sickness into the blessed realm of normalcy. In this we learn from Nature, rather than from books, striving at bedside and in laboratory to unravel the ways in which the mother of us all protects the human mechanism and builds it back to vigor. Thus we acquire knowledge and judgment, in the application of which we must exercise leadership.

The first necessity in leadership of any kind is self-discipline, that, with judgment, an objective shall be selected and the mind, the will and the strength focused upon its achievement. This implies a continuity of effort, a tenacity of purpose and an unswerving adherence to the chosen path. A great many of the failures of life result from an inability to work on doggedly until the goal is reached, to an unwillingness to adapt oneself to environment and to a lack of appreciation of the fact that he who will lead others must lead himself.

He who would scale achievement's height,
Must first surmount the meaner hill,
And from this victory o'er self take flight,
Upon the wings of his own will.

The prime requisite in this is faith—faith in self, faith in associates, faith in the work. Without faith there can be no success. It begets an equanimity of mind which is of incalculable worth in the approach to patients and creates that courage of certainty against which the buffetings of life are powerless. Best of all it brings patience in adversity, unwhimpering silence in pain and genuine modesty in success. Having faith, the will can force persistent industry, a quality without which one cannot gain leadership of self or others. It is the prophylactic of worry, that most profitless occupation of the human mind, the heartener in disaster and the lightener of life's burdens.

Faith without works is dead and usually it has been killed by intellectual laziness complicated by unreasoning optimism. Work, intellectual honesty and a healthy scepticism are the antidotes for self-deception, a malignant mental disease against which the physician must ever be on guard. We should at all times maintain the open mind, ready to accept the best from any source, once it is asured that it is the best, but this asurance must be doubly sure, lest we be led astray to worship at the false shrines of near-quackery. Panacea, a daughter of Aesculapius, is a deceitful goddess whose devotees are daily offered specious therapeutic charms and we do well to look askance at novelties in diagnosis and treatment until they are backed by indubitable scientific evidence. Of all the many things which shake the layman's confidence, nothing is more harmful than the running after fads which we are soon forced to abandon as impotent or harmful. In this regard, it is far better to err on the side of conservatism than to chase the *ignus fatus* of half-baked radicalism.

This connotes another valuable adjuvant to leadership, that most uncommon virtue, common sense. There is another homely word for this, gumption, which comes from a Saxon root meaning to take heed. At base, common sense is simply heeding and if the practitioner of medicine will simply heed, he will be spared many humiliating mistakes. The common sense thing to do is always the right thing to do and it is most appreciated by the laity. Its twin is simplicity in thought, manner and action. The great forces are all simple, and bombast, which, by the way, means padding, is simply a protective mimicry of greatness. Dignity, the quality of meriting, the physician must have, bearing in mind, however, Mark Twain's injunction, "Be dignified, be dignified, be dignified as an ass"!

One other attribute of self-leadership which is to be commended is the cultivation of the habit of culture. In the classical acceptance of the term, the pursuit of science is not culture, a word which contemplates those mental esthetics which our ancestors, with fine discrimination called, "the humanities." Devotion to the classics, to music, to art and the refinements of life is not utilitarian, but it is a great preventive of vegatism, an anti-scorbutic for materialism, and best of all, it keeps the work-driven doctor from selling his soul for the pottage of financial and professional success.

From the leadership of self comes the leadership of patients. In the great majority of cases men study medicine for the ultimate purpose of acquiring a living and though the sordid pecuniary affairs of life are distateful to many, it is probably best that most of us must earn the wherewithal to live in comfort, since hunger is the greatest of all stimuli to continued effort. Many of us imagine that if we were loosed from the painful need of self-support, we would be free and untrammeled to pursue the ideals of our art, but unfortunately, the average human being is entirely willing to follow a *dolce far niente* existence unless spurred by the ruthless heel of bitter necessity. We are therefore obliged to build up a practice or to engage in some salaried field in order that we may live. In this very act we must choose between starvation and the development of the art of leadership.

If this is to be gained, it must always be borne in mind that patients are human beings who are sick, or, and this amounts to the same thing, think they are. Too frequently, they are subconsciously classed as vehicles for a symptom-complex and perhaps we sometimes lose sight of the fact that they are more interested in cure than in diagnosis. Most of them rather dread us with our pryings into their minds and bodies; they resent our deferment of treatment until diagnosis has been reached; they are specially vexed at our habit of referring them to specialists. What they demand is the reasonable promise of cure or at least a gesture toward it, and if we are unable to do this, they seek relief at other hands, oft times less scrupulous and skillful. The quack is with us always and will be until we reach a thorough human understanding of the patient and his mental processes. Frequently, we feel that the patient is ungrateful and often he truly is, but it is a grievous error to expect much gratitude from your fellow man. If we expect it, it comes not at all; if we do not, it appears from unanticipated sources. The true physician must be above working for this reward; he must deal gently with the foibles and misdoings of mankind; ours not to criticise but cure, and when we are wronged, we can but pray with Stephen, "Lord, lay not this sin to their charge." Patience, gentleness and tact, that art of touching our fellows gently, are the means by which the leadership of patients is acquired.

Leadership in the medical profession itself is to be accomplished by a variety of qualities. Not all good physicians acquire such leadership and not always do the best men reach the so-called top in the profession, but the man of real worth can-

not be kept down. From the moment of graduation, every physician should cultivate the medical society habit, that sovereign remedy against slovenliness of thought and narrow anti-socialism. There, contacts are established with other minds, friendships are made which last until life's end, new thoughts are garnered, old ideals stimulated anew, and aspirations generated.

As a corollary, the physician must keep himself abreast of current medical literature lest deterioration set in; post-graduate courses must be taken frequently and every effort bent to the improvement of his mind to the end that he may be able to bring to his patients sound judgment and intelligent experience.

One other field of leadership remains for consideration, one which is too frequently neglected, that is, leadership in the community. Many physicians encloister themselves in their professional work to such an extent that they forget their duties as citizens. They take no interest in politics; they belong to none of the business clubs or civic organizations. As a result, they fail to render a service to which the public has a right. If we are to lead the people out of the dangerous and unproductive desert of preventable disease and lowered vitality and into the safe and comfortable fields of health, we cannot be aloof. More and more the public is looking to us for guidance in the maintenance of health, the promotion of longevity and the protection of the racial stock. The community in one way and another has contributed largely toward the cost of our education; it has a right to the best which we can give it in curative and preventive medicine, and if we are niggardly and grudging in discharging this bounden duty, we are ungrateful and unfaithful. Under our leadership, the public can be indoctrinated in health habits, it can be taught the necessity and practice of community health and thereby its peace, security and usefulness will be increased. There is no line of demarcation between curative medicine and preventive medicine; there never can be; always the twain must advance hand in hand. In this complementary relationship, they can and should be reciprocally helpful, and the public, whose servants we are, will thereby be benefitted.

There is a tendency toward early specialization which is a wrong approach to leadership in medicine. Before one can be a good specialist, he must have a sound knowledge and wide experience in dealing with the sick and only upon this solid foundation can legitimate and useful specialization be practiced. Then, and only then, can wise choice of a restricted field be made. In making this choice, there is but one rule to be followed. The physician must ardently desire to follow a certain line of endeavor; he must be willing to make any sacrifice for it, to curtail recreation anl pleasure, to postpone marriage and to consecrate himself to it utterly. The rewards of such a Spartan policy are great but not every man is possessed of the qualities of body, mind and character requisite to so arduous an endeavor. Such a course of action is to be undertaken only after careful self-evaluation, a full consideration of the pains and costs involved and a firm determination to choose the work solely for the work's own sake. Then will come the blessing of a busy, useful life, rich in accomplishment and fraught with enormous potentialities for human betterment. But this does not apply to the specialist alone. The world is full of opportunities for the faithful physician; at every turn there is a question to be answered, a problem to be solved, a discovery to be made, a pain to be relieved, a body to be mended or a sorrowing heart to be comforted. You chosen sons of Aesculapius, how glorious is your heritage, how bright your future in the battle for the sanctity of human minds and bodies! Yours are the keys of life and death. Yours is the mission of healing and protection, of solace and alleviation and through your art and science, the leadership of man into a better, saner, happier, more wholesome world!

RABIES AND ITS PREVENTATIVE TREATMENT*

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The marked increase in the last few years in the incidence of animal rabies, and a like increase in the number of preventative antirabic treatments given to persons bitten or otherwise exposed to infection has prompted me to bring this important subject to your attention. From a study of the charts I and II taken from the records of the Laboratory of the Charity Hospital at New Orleans, and of the State Board of Health, covering the City of New Orleans and the State of Louisiana, this increase can readily be seen, and its seriousness noted. Comparing the years 1920-21 to 1923-24 the charts show an increase of over 100 per cent in the number of brains examined, with a steady increase yearly since then. There has also been a marked increase in the number of positive brains, it being noted that in 1924 over 50 per cent, and since then over 60 per cent of all brains examined in both institutions were reported positive. It is also called to your attention that the disease is present in other domestic animals, infection having been found in the cat, horse, cow, fox, calf, goat, and mule. The records of the number of patients given anti-rabic treatment at Charity Hospital show a marked and steady increase each year, beginning with 174 in 1920 to 495 in 1925 (receiving the treatment). In 1926, 474 were treated and the number this year to date exceeds previous years.

Rabies, also called lyssa, hydrophobia and la rage, is an acute infectious disease, transmitted by the bite of an infected animal, and characterized by a condition of increased nervous excitability, followed by paralysis.

Rabies in man results from the inoculation of the virus usually through the bite of rabid animals, especially the dog. The disease occurs among all warm blooded animals, but the dog and cat are most commonly affected. Even birds may contract the disease. Other animals that may become infected are cattle, sheep, goats, swine, wolves, coyotes, skunks, jackals, foxes, hyenas, horses, rats and mice. Epizootics among some of these animals have been reported.

Rabies exists practically all over the world, except in Australia. In England, except for a short time during the war, it has been exterminated due to strict enforcement of the muzzling and quarantine laws. It is very common in France, Belgium, Russia, and the United States.

The disease is perpetuated by the dog almost exclusively, and over 90 per cent of transmission to man is by this animal. Other animals transmit it to a small extent, and I have given anti-rabic treatment in one case following a human bite, and in several cases where the infected saliva came in contact with open wounds or abrasions.

The disease is transmitted through the saliva of the infected animal, usually by one or several bites, at other times by the rabid animal licking the skin and introducing the infection, occasionally following an attempt to force medicine or food down the animals throat when the disease is not recognized. A case of this kind but recently happened. Only slight abrasions are necessary, or the bites may be very superficial. The infection is not transmitted by meat or milk from infected animals or by coitus. The virus is harmless when ingested, and must be inoculated into the tissues to produce infection.

The saliva is infectious for as long as 3 to 5 days, and possibly 8 days (Roux and Nocard) before symptoms develop in the animal, a very important point to remember. It is, therefore, sufficient to observe a dog that has bitten a person

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*Read before Louisiana State Medical Society, New Orleans, April 26-28, 1927.

**From Pathological Dept., Charity Hospital, New Orleans, La.

or animal for ten days. If no symptoms of rabies appear during this time, there is no danger of conveying the disease and the Pasteur treatment is unnecessary.

The virus has been found in the adrenals, tear glands, pancreas, vitreous humor, spermatic fluid, urine, lymph, milk and all parts of the central and peripheral nervous sytem. Manouelian has found Negri bodies in the ganglion cells of the salivary glands. It has not been found in the liver, spleen or muscles. The virus enters the body through the broken skin and follows the nerve trunks from the seat of injury to the spinal cord and brain. Fourteen days must elapse from the time it reaches the brain before symptoms develop. This explains, to a great extent, the variable period of incubation; it being shorter in wounds of the face than in wounds of the body and extremities. It also explains the fact that the disease is more liable to occur when wounds are in parts of the body with a rich nerve supply.

The rabies virus belongs to a group of viruses which pass through bacterial filters and is called a "filterable virus." The virus is of two types, the "street virus" as it occurs in natural infection, and the "fixed virus" which is produced by the repeated inoculation of "street virus" through a series of rabbits by subdural injection, which results in the virulence becoming greatly increased, and a shortening of the incubation period, which finally becomes fixed, and the disease then constantly develops in 6 to 7 days. This is called "fixed virus" and cannot be changed back to "street virus," just as "smallpox vaccine virus" cannot be changed back to "smallpox virus." The advantage of "fixed virus" is that in suitable doses injected subcutaneous it is not infectious for man, and far less infectious for animals than "street virus," and when so injected produces immunity against "street virus." However, it is not innocuous and may produce "fixed virus paralysis" in man.

In the year 1903 Remlinger demonstrated that the virus was filterable and Negri discovered in the pyramidal cells of the nervous system the bodies that bear his name. Negri bodies are round or oval bodies, varying greatly in size from 0.5 to 27 microns in diameter. The number and size of the bodies vary in different cells; as many as 5 or 6 being present in some. They are found in the cytoplasm of the large ganglion cells throughout the central nervous system, especially in the Hippocampus (Ammons horn) and Purkinje and pyramidal cells in the cerebellum. These bodies are large in cases of "street virus" infection, and very much smaller and few present following inoculation of "fixed virus." Frosch has suggested the shortening of the incubation period as the cause of this.

Negri bodies are specific for rabies and are found only in animals infected with rabies. When stained they are found to consist of small granules surrounded by a capsular material. The question of what these bodies are has been, and still is, in dispute. Negri believed them to be protozoa, and considered the "inner bodies" to be granules of chromatin. Others believe the Negri bodies to be degenerative and that the virus is not seen. Goodpasture recently has studied the question extensively and comes to this conclusion. The most common view is that the "inner bodies" are the virus surrounded by a capsule or mass of ground substance produced by reaction from the infected cell.

Prowazek considers it in the class of "chlamydozoa"; and because of the evidence of its animal nature being quite convincing, Williams in 1906 gave them the name "neuroryctes hydrophobiae."

Many attempts have been made to cultivate the specific etiologic factor. In 1903 Nogouchi reported the successful cultivation of the organisms. However, his work has not been duplicated or substantiated by other workers, they having failed to get the same results after numerous attempts.

The virus of rabies in the spinal cord of rabbits dies in 5 days when dried at

20-22° C., if protected from light and putrefaction. It is quite resistant to putrefaction and has been reported as remaining alive in the brain of a dog buried 44 days. To be recovered from decomposed material it must be mixed with glycerin which destroys the contaminating bacteria and preserves the virus. It is destroyed by heat at 50° C. in one hour and at 60° C. in one-half hour. Extreme cold does not injure it. It is very resistant to ordinary germicides. Five per cent phenol requires 5-7 days to kill the virus and 0.5 per cent takes 20 days. Bichlorid of mercury 1-1000 kills the virus in one hour. Formalin has a very specific action on the virus and a 0.08 per cent solution kills it in 2 hours. This suggests its use for the treatment of dog bites, but experiments have shown nitric acid to be far superior.

Rabies virus produces a toxin which is partly bound to nerve tissue. Rabic material filtered through a Chamberland filter produced emaciation, paralysis and death in experimental animals, but the brain or cord is not infectious. Galtier found that rabies toxin would produce paralysis even after heating to 100-105° C.

Susceptibility to rabies varies considerably, and the fact that man is only slightly susceptible is one great reason we do not see much more human rabies. The susceptibility has been put as low as 5 per cent by some, and as high as 50 per cent by others. Children are more susceptible than adults. There is no difference in sex susceptibility. In lower animals susceptibility varies from 40 to 70 per cent. The danger of infection varies with the number and severity of the bites, and especially their location. Multiple and deeply lacerated bites are most likely to transmit the infection, and for this reason wolf bites are more dangerous. They also transmit a virulent type of infection, being very susceptible to the disease. Bites of herbivera and animals with blunt teeth are less dangerous than those with sharp or long teeth, which penetrate deeply.

Bites on exposed surfaces are more dangerous than through clothing, because more of the saliva is wiped from the teeth and little enters the wound. Bites upon the face, especially about the eyes and nose, are most liable to be followed by rabies.

Not every person bitten by a mad animal develops rabies, and the various figures given are hard to analize. According to most reliable data 16 per cent of human being bitten by rabid dogs and not

TABLE I.

Showing results of all brains examined, 1920 to 1927, at Charity Hospital.

	—1922—			—1923—			—1924—			—1925—			—1926—		
Total No.	138			268			285			233			286		
	P	N	U	P	N	U	P	N	U	P	N	U	P	N	U
			(4)											(2)	
Dog Brains	55	62	8	59	172	11	128	99	21	141	63	9	157	86	3
Cat Brains	2	7	4	4	15	2	8	18	3	9	3	3	15	13	1
Horse Brains	....	....	....	1	....	....	....	....	2	....	....	....	....	....	..
Calf Brains	....	....	....	1	....	....	1	....	2	2	1	....	1	1	..
Rat Brains	....	....	....	....	1	....	....	....	....	....	1	....	....	1	..
Hog Brains	....	....	....	....	1	....	....	1	....	....	....	....	1	....	..
Squirrel Brains	....	....	....	....	1	....	....	....	....	....	1	....	....	....	..
Rabbit Brains	....	....	....	....	....	....	....	1	....	....	....	....	1	....	..
Mule Brains	....	....	....	....	....	....	1	....	....	....	....	....	....	....	..
	57	69	12	65	190	13	138	119	28	152	69	12	175	105	6

Note: 4 not recorded.
2 living (remained well).
P—Positive—Negri Bodies in sections.
N—Negative—No Negri Bodies in sections.
U—Unfit—Brains decomposed or otherwise unfit for examination.
1920 and 1921 not recorded as to type of animals.
Total number of brains for 1920—119.
Total number of brains for 1921—116.

taking Pasteur treatment develop the disease.

While it is commonly supposed that the disease prevails most during the hot summer months, statistics show that the disease is just as common or more so during the winter months, and much more virulent. More dog bites occur from April to September than from October to March, because dogs run abroad more freely at that time. Of those bitten a much greater percentage require treatment during the winter months. A study of the figures by months from the Charity Hospital, New Orleans, La., during the years 1920 to 1927 confirms this. (Table V.) It also shows that each year the greatest number of persons are given treatment for injuries by proven rabid dogs during December, taking the totals for the years 1922 to 1927, and that this also holds true for the last quarter of each year as compared with the other quarters, the first quarter following, then the second quarter, and the third quarter being the least frequent.

Charts III and IV show the number of positive dog brains by months during the years 1920 to 1927.

The incubation period varies considerably and fortunately is quite long in most cases. It has been stated to vary from 14 days to 1 year or more, but the longer period seldom occurs. The usual period of incubation may be given as 14 to 100 days, with only a small percentage occurring after that time. The average period of time during which most cases occur is 5-8 weeks in natural infection. Hautner gives the incubation period as less than 2 months in 83 per cent, within the 3rd months 16 per cent, and over that time 1 per cent. The variation in the incubation period depends largely on the following factors:

(1) Site of the wound, being shortest in bites about the face.

(2) Relation to the large nerves.

(3) Amount and virulence of the virus.

(4) Severity and number of wounds.

(5) Age, children being much more susceptible.

(6) Weakened condition of the body due to alcoholism, syphilis and many infectious diseases.

Clinically rabies is of two types.

(1) Furious or excitable type.

(2) Dumb or paralytic type. However, many cases are mixed.

The clinical manifestations of the disease in man and animals are divided into three stages:

TABLE II.

Showing results of examination of all brains, 1920 to 1927. Examined at La. State Board of Health Laboratory.

	—1920—			—1921—			—1922—			—1923—			—1924—			—1925—			—1926—		
Total	16			21			49			102			147			164			125		
	P	N	U	P	N	U	P	N	U	P	N	U	P	N	U	P	N	U	P	N	U
Dog	7	7	..	2	17	..	8	34	..	40	50	..	66	58	..	90	51	..	65	36	..
Cat	0	1	..	0	1	..	0	4	..	4	7	..	5	10	..	5	8	..	6	13	..
Horse	..	..	..	0	1	..	..	....	..	....	....	..	....	....	..	0	1	..	2	0	..
Calf-Cow ..	..	..	..	..	....	..	2	0	..	1	0	..	3	3	..	4	2	..	....	....	..
Rat	..	..	..	..	....	..	..	....	..	..	....	..	....	....	..	....	....	..	0	1	..
Hog	0	1	..	..	....	..	0	1	..	....	....	..	....	....	..	....	....	..	....	....	..
Fox	..	..	..	..	....	..	..	....	..	....	....	..	....	....	..	....	....	..	1	0	..
Rabbit ..	..	..	..	..	....	..	..	....	..	....	....	..	0	2	..	....	....	..	....	....	..
Goat	..	..	..	..	....	..	..	....	..	....	....	..	....	....	..	....	....	..	1	0	..
Chicken..	..	..	..	..	....	..	..	....	..	....	....	..	....	....	..	0	1	..	....	....	..
Monkey..	..	..	..	..	....	..	..	....	..	....	....	..	....	....	..	0	1	..	....	....	..
Mule	..	..	..	..	....	..	..	....	..	....	....	..	....	....	..	1	0	..	....	....	..
Total.....	7	9	..	2	19	..	10	39	..	45	57	..	74	73	..	100	64	..	75	50	..

P—Positive Negri Bodies in Smears or Sections.
N—Negative Negri Bodies in Smears or Sections.
U—Unfit for examination (not noted).

(1) Prodromal or invasional.

(2) Paroxysmal.

(3) Paralytic.

In man the furious type is represented by the spasmodic form. Only a brief description of each will be given.

In dogs a change in disposition and an abnormal and perverted appetite are especially to be noted in the early or prodromal stage. Little food is eaten, but large amounts of sticks, stones, hair, leather and dirt. The excitable or mad stage follows and the dog tends to bite everything in sight at times; at others, and quite frequently, they leave home and run for miles until worn out, finally returning home, usually shaggy, filled with dirt or bloody and bitten from fighting other animals. They have been known to run as far as forty miles and frequently average 15 to 20 miles, often biting persons or animals along the way. They do not fear water as commonly thought, often running through it, and will drink freely until paralysis sets in. The lower animals never show "hydrophobia." A change in the bark is very characteristic of rabies, the bark changing to a coarse howl.

Usually after 2 to 4 days, weakness and paralysis set in usually in the hind legs and is ascending in type. This varies, however, with the site of the bite. After a few days paralysis becomes extensive and rabid animals become very emaciated and finally die. The entire course of the disease is 5 to 6 days, never more than 10 days.

In the dumb or paralytic type the prodromal and excitable stages are short and the paralysis comes on quickly. Often it occurs in the jaws first, causing drooping of the lower jaw. This frequently gives the appearance of a bone in the throat, and is often mistaken and treated for such. Rapid emaciation and death in a few days follow. Under natural conditions 80 to 85 per cent of dogs develop furious rabies, and 15 to 20 per cent develop paralytic rabies.

In man the prodromal symptoms are irritability at the site of the bite, especially itching and pain, with redness and edema. There are neuralgic pains throughout the body, headache, and loss of appetite. Various psychic symptoms occur. The patient is depressed, anxious, and there is marked insomnia and restlessness. The voice is often changed.

The spasmodic stage sets in suddenly, at times without prodromal symptoms. The characteristic symptom is spasm of the muscles of deglutition making it difficult or impossible to drink. This develops a fear of trying to drink, hence the name

TABLE III

Showing number of Positive and Negative dog brains by months, 1922 to April, 1927, inclusive. Examined at Charity Hospital. (Path. Dept.)

	—1922—			—1923—			—1924—			—1925—			—1926—		
	P	N	U	P	N	U	P	N	U	P	N	U	P	N	U
January	3	4	1	9	14	....	1	11	....	11	7	....	3	6	....
February	4	4	....	3	13	2	12	16	2	15	10	1	7	3	....
March	6	5	....	6	16	1	10	6	....	13	7	....	14	5	....
April	3	8	1	1	14	1	23	6	3	10	6	....	13	6	....
May	1	5	1	5	14	1	12	9	2	11	2	1	11	3	....
June	3	10	....	7	11	2	11	12	4	10	5	1	15	11	1
July	6	2	3	6	10	....	10	11	4	16	3	1	10	14	....
August	5	8	1	3	24	....	9	3	....	11	6	2	13	15	1
September	2	4	....	6	10	1	5	6	4	9	3	2	10	3	1
October	7	5	....	4	12	2	11	3	1	12	6	1	16	7	....
November	6	3	1	8	18	1	15	6	....	10	4	....	24	9	1
December	9	4	....	1	16	....	9	10	1	13	4	....	21	4	1
Total	55	62	8	59	172	11	128	99	21	141	63	9	157	88	5

4 not recorded

2 living.

P—Positive dog brains.
N—Negative dog brains.
U—Brains unfit for examination.

"hydrophobia," which is characteristic of human rabies. There also develops great excitability and irritability until any slight stimulus produces severe spasms of the muscles. The spasms involve the muscles of respiration early: The spasms come on in the form of attacks that last one-half to three-quarters of an hour and gradually get worse. Convulsions frequently occur and saliva is expressed from the lips, which are spastic, often with a peculiar hissing sound. The saliva is often frothy due to spasm of the jaw muscle. There is great anxiety increasing to mania with delusions and hallucinations. The patient may spring from the bed, rush for the door or about the room, often on all fours. Between attacks the patient is quiet, his mind clear but anxious. Allen and Horne report a case where a child with rabies bit her father on the hand. Last year I had occasion to give prophylactic treatment to a patient who was bitten while attempting to hold a patient with rabies during a spasm, and to six members of the family exposed to the saliva and having abrasions about the hands and face from restraining the rabid patient.

Fever during the attacks varies from 100° to 107° with high terminal temperature. Nausea and vomiting are common, often blood-stained.

The patient may die in convulsions, from asphyxia, or from gradual exhaustion; most commonly paralysis sets in and the spasms stop and are followed by coma and death. Often, however, the patient is conscious to the end and frequently knows the existing condition.

The average duration of the disease from the time the spasm of the throat sets in is 2 to 3 days.

Paralytic or dumb rabies has a very short prodromal and excitable stage and paralysis comes on very early.

The mortality in human rabies is 100 per cent, but it is possible to prevent its development in over 90 per cent of cases by prophylactic inoculation, especially if begun early.

The diagnosis of rabies in animals may be made in four ways:

(1) Clinical symptoms.

(2) Presence of Negri bodies in the central nervous system.

(3) Lesions in the peripheral ganglia.

(4) Animal inoculation.

1. The clinical diagnosis is sometimes very easy, but often impossible because of other conditions that simulate it. When the animal dies, the diagnosis should always be confirmed by the examination for Negri bodies in the central nervous system.

Important: Any animal suspected of being rabid or that has bitten an individual should never be killed, but should be caged and observed for ten days. If the animal remains well at the end of this time it may be considered as not rabid.

(2) Presence of Negri bodies in the central nervous system. If the animal dies or is killed, the head should be removed at the neck and immediately sent to the laboratory. Care should be taken not to crush the brain. If the head must be sent for some distance as from the country, it must be sent well packed in ice, using enough ice to last until it is delivered. If this is not practical, the brain should be removed and sent in acetone, 33 per cent glycerin,

TABLE IV.

Showing number of Positive dog brains by months, 1922 to 1927. Examined at La. State Board of Health Laboratory.

	1920	1921	1922	1923	1924	1925	1926
January	0	1	0	1	3	3	11
February	0	0	3	6	8	10	5
March	1	0	0	10	6	15	8
April	0	0	0	6	6	7	5
May	1	1	0	1	7	8	5
June	0	0	0	4	1	8	5
July	0	0	1	0	5	4	6
August	2	0	0	2	7	6	4
September	1	0	0	2	2	4	3
October	0	0	0	1	6	15	3
November	0	0	1	3	5	5	6
December	2	0	3	4	10	5	4
Total	7	2	8	40	66	90	65

10 per cent formalin, or may be packed in borax.

On receipt at the laboratory direct smears are made or sections rapidly run through. If smears are negative, sections are run through and occasionally may be found positive when no Negri bodies were found in the smears.

The Negri bodies are found in the large ganglion cells, and for this reason smears and sections are made from the regions where they are most numerous, i. e., cerebral cortex, hippocampus major (Ammons Horn) and cerebellum. The latter has been found to be a very favorable site as the cells are very large, easy to study in sections, and the Negri bodies numerous and well distributed.

Smears or impressions are fixed in methyl alcohol, then stained with either Van Geisen, Frothingham modification; Williams (which is very satisfactory) or some similar stain which can be rapidly performed. They are then washed, dried and examined with oil immersion lens.

At the Charity Hospital sections only are run through, a special method using rapid fixation, paraffin embedding and staining with Mallory's anilin blue connective tissue stain being used. Sections from the cerebellum and Ammons Horn are used and a report given in 18 to 24 hours. If necessary these can be rushed through and a diagnosis given in a few hours. Many other very satisfactory methods are available such as those of Mann, Lentz, Goodpasture, etc. The diagnosis of these sections are final, as after many years experience we have found animal inoculation unnecessary and too long for practical value, so that it is no longer performed.

(3) The lesions in the peripheral ganglia as described by Van Gehuchten and Nelis, while characteristic when present, are available for diagnosis only in a small percentage of cases that are well developed

TABLE V.

Showing by months: Number of patients applied for treatment. Number patients treated. Number treated injured by proven rabid animals. Years 1920 to 1926, inclusive.

	1920			1921			1922			1923		
	N	P	PT	N	P	PT	N	P	PT	N	P	PT
January	39	21	....	58	10	....	47	16	8	63	21	15
February	42	14	....	46	22	....	48	10	8	52	17	5
March	51	14	....	60	11	....	66	32	7	84	23	16
April	66	13	....	62	8	....	54	19	12	72	17	8
May	96	28	....	91	17	....	60	11	5	86	18	3
June	73	16	....	79	11	....	68	11	2	55	12	2
July	68	10	....	69	10	....	64	13	7	98	39	14
August	52	11	....	100	30	....	49	27	12	86	18	3
September	42	9	....	62	16	....	45	8	0	67	23	7
October	56	16	....	39	2	....	36	12	5	58	27	5
November	44	8	....	34	5	....	39	10	5	55	19	6
December	38	14	....	50	12	....	74	49	19	51	22	12

	1924			1925			1926			1920-1926		
	N	P	PT	N	P	PT	N	P	PT	N	P	PT
January	65	11	2	60	39	25	60	18	8	295	95	58
February	91	34	10	101	52	30	80	18	8	372	131	61
March	94	48	21	95	40	20	80	32	24	418	175	88
April	91	51	38	94	36	15	113	40	16	424	163	89
May	74	21	12	93	32	20	110	35	15	423	117	55
June	104	38	28	104	39	20	155	40	10	486	140	62
July	94	43	30	117	37	23	150	33	15	523	165	89
August	74	21	12	96	36	19	135	48	14	436	151	60
September	94	29	14	84	25	13	89	27	9	425	112	53
October	89	35	21	72	30	15	101	45	29	456	149	74
November	98	43	22	80	45	33	110	64	31	382	181	97
December	109	63	43	117	84	77	108	74	34	459	292	185

N—Number patients applied for treatment.
P—Number patients treated.
PT—Number treated injured by proven rabid animals.

being seldom seen in animals killed early in the disease.

(4) Animal inoculation is never of value to determine if prophylactic treatment should be given. It has also been found unnecessary, after a check of positive and negative brains over a period of several years. It may be used to confirm results of smears or sections or to obtain the virus for further use. However, during the long time it may take to develop the disease in the lower injected animal, if the patient has not taken prophylactic treatment, he may have succumbed to rabies.

The inoculation, if performed, is best made into rabbits or guinea pigs, especially the former. It is made subdurally, injecting a small portion of the medulla, pons or Ammons Horn, which is ground up and suspended in normal salt solution. Decomposed brains cannot be used, unless the contaminating organisms are first gotten rid of.

The diagnosis of the disease in man must be made from the history and clinical symptoms. Diseases to be kept in mind in the differential diagnosis are tetanus, delirium tremens, poliomyelitis, meningitis, and lyssophobia or hysterical hydrophobia, which must be guarded against. Symptoms of Landry's (ascending) paralysis always suggests rabies; and the paralysis of anti-rabic treatment is of this type.

TREATMENT.

I. Curative.

II. Prophylactic.

I. No kind of curative treatment to date has been of any value, although numerous drugs, serums, etc, have been used. The mortality rate is 100 per cent.

II. The prophylaxis of rabies comes under three heads

I. Treatment of the wound.

II. Anti-rabic (Pasteur) prophylactic treatment.

III. Control of the disease in dogs.

I. Treatment of the wound: This is important. All wounds should be treated as though the animal was rabid, unless it is proven otherwise. Early treatment is important. The wound should be opened freely, all detritis cleaned away and bleeding encouraged. It should then be thoroughly cauterized with fuming nitric acid, applied best with a glass rod. This seems to have a specific effect on the virus as shown by Cabot, who saved 91 per cent of infected guinea pigs by cauterizing with nitric acid at the end of 24 hours. Poor saved 45 per cent at the end of 22 hours. Formalin also has a marked specific action, or the actual cautery may be used. Pure carbolic acid is recommended by Semple as more humane, being practically painless because of its local anesthetic effects, but others doubt its value. In all cases early and thorough cauterization is imperative.

II. Anti-rabic treatment: Of great importance is the question, who shall receive treatment? This is at times hard to decide, but the rule should be in all doubtful cases to advise treatment. However, treatment causes a certain amount of personal inconvenience, aside from the slight danger of paralysis, and should not be given when unnecessary.

The indications for treatment are as follows:

Anti-rabic treatment should be carried out if:

(a) Animal is rabid.

(b) Persons having been exposed to infected saliva, i. e., through scratches or abrasions of skin or mucous membranes.

(c) If animals disappear while under observation.

(d) If animal is unknown.

If person is bitten and dog appears well, it is important that it should *not* be killed, but it should be observed for ten days. During this time it may show the followings:

I. Develop rabies; give anti-rabic treatment.

II. Die under suspicion, (a) if bites of head, face or neck, begin treatment, and examine brain of animal of rabies (Negri bodies); if positive complete treatment—if negative, treatment may be stopped; (b) if bites of extremities, examine brain of animal microscopically. If positive—treatment should be given. If negative—no treatment is necessary.

III. If sick, but lives ten days, not likely to be rabies, but observe further, and if animal develops rabies, treatment should be carried out

IV. Remains well at end of ten days—no treatment necessary.

V. If bites are about the head, face or neck, especially if severe, and incidence of animal infection is high, treatment is started because of the short incubation period in some of these cases If the animal subsequently proves negative, treatment is discontinued.

Anti-Rabic Treatment—This was one of the great achievements of the immortal Pasteur and was announced before the International Congress at Copenhagen in 1893, and the French Academy in 1894. Pasteur's method consists of the production of immunity by means of an attenuated virus. The virus is attenuated by drying. The method of procedure is essentially as follows: The cords of rabbits dead of fixed virus infection are removed under aseptic precautions, and suspended in bottles over potassium hydroxid. The bottles are kept at a temperature of 22° C. in the dark. Under these conditions the cord gradually dries and also loses virulence after the third day, so that at the end of 14 days it is no longer infectious. For this reason Pasteur began treatment with a 14 day cord. However, the virus dies long before the 14 day and 5 day old cords may fail to infect. Treatment usually consists of 1 cm. of dried cord mascerated in 3 cc. salt solution, and injected subcutaneous, on alternate side of the abdomen, treatment being given daily beginning usually with a 12 to 14 day cord, and scaling down through 12, 11, 10 day cords, etc., until 3 day cords are used at the end. The treatment lasts 18 to 21 days, depending whether mild or severe. It has many modifications, all of which are known as "dried cord" methods.

Various modification also have developed. Hogyes, holding that drying, diluted, instead of attenuating the virus, used undried cord, so diluted that the dose would not cause rabies, and using increasing doses in subsequent treatments. Others attenuated the virus by heat, gastric juice, phenol solution, or dialysis. Harris applied Schakells method of freezing and drying bacteria to the freezing and drying of rabies in vacuo and found that the virus, so dried and kept cold, retained its virulence for 6 months or more. By this method the dried powder can be standardized, the minimal lethal dose (M.L.D.) for rabbits being the unit, and accurate treatment by measured dosage given. Also the time of treatment is short, 11 days treatment being given for all except bites of the face, head and neck, when 15-day treatment is given. This method of treatment has been used at the Charity Hospital at New Orleans since 1910 with excellent results.

Since even dead virus will produce immunity, as shown by Harris and others, there is some tendency at present to the use of this method, especially where it must be sent a long distance in the country or where it cannot be kept at the proper temperature. Semple in India has used and recommended a treatment of this type, killed with phenol, and reports excellent results. Only 14 doses are necessary and all doses are alike.

Babes and many others have used antirabic serum simultaneously with the antirabic treatment with good results, but its value is hard to estimate and it is considered unnecessary.

Care During Treatment—No special care is necessary. The patient may go about his usual business and it is not necessary to go to bed. The patient should avoid fatigue, cold, trauma and alcohol.

Complications of treatment are: (1) Local reaction, (2) paralysis.

Local reactions at the site of the injections are usually trivial, and may not occur at all. Usually a red area appears at the site of injection about the 7 or 8 day which lasts about 24 hours. It may occur at all subsequent injections or just occasionally thereafter. The area is red, edematous, itches or may be quite tender. Occasionally, especially in fat individuals, it may be quite large, 10-12 cm. The reaction is a local foreign protein reaction due to hypersensitiveness to the foreign protein injected. Constitutional effects may be malaise, slight fever and loss of appetite. Occasionally paralysis may develop. It may be slight or severe. In all cases it develops with loss of appetite, mild fever, stiffness in the back and weakness of the legs. It is usually an ascending paralysis of the Landry type. Involvement of the sphincters may occur. The paralysis may also extend up to and involve the arms, face and may even show bulbar symptoms. There are marked sensory disturbances. The paralysis comes on usually 11 to 12 days after treatment is begun. The nature of the condition is doubtful and has been ascribed to:

I. Abortive cases of the paralytic form of rabies, resulting from the bite from which the person is being treated, which recovers under anti-rabic treatment.

II. Abortive cases of the paralytic form of rabies, due to the fixed virus inoculation.

III. The toxin of the rabies virus.

IV. The toxic action of the material injected, other than a virus toxin.

V. Hypersensitiveness.

Fixed virus has been found in the brain of some cases dead of paralysis, but not in others. Fieldner considers it a fixed virus infection.

Simon collected 100 cases of paralysis among 217,774 persons receiving treatment, or 0.048 per cent.

Paralysis depends to a great extent upon individual susceptibility and appears often in adults and rarely in children. It is very rare when the Hogyes dilution treatment is used, and also when the virus is killed by ether, phenol or dialysis. It is more frequent with intensive treatment. However, its incidence is so slight compared with the incidence of rabies when no anti-rabic treatment is given, and also as most cases of paralysis completely recover, whereas none recover from rabies—that it should cause no hesitation in the giving or recommending of anti-rabic treatment.

The small element of danger, nevertheless, should remind us that the treatment should not be given unnecessarily.

There are no contraindications to treatment, but it is stopped if rabies or paralysis occur. During pregnancy or other diseases the treatment may be continued.

Immunity following anti-rabic treatment lasts about 1 year to 18 months or more, varying with the individual. Cases of rabies that occur within 14 days after treatment are not included in statistics and are not considered as failure of treatment.

Statistics over a long period of time with the Pasteur treatment show a mortality of less than 5 per cent, and much less with some of the newer methods. When this is compared with the fact that conservatively 16 per cent develop rabies who are not treated, its great prophylactic value is evident.

General prophylaxis should be directed against the disease in lower animals, especially dogs. This should include strict muzzling laws, destruction of homeless and stray dogs, a high license fee, tags, legal responsibility to owners for damages

inflicted by dogs, education of the public, strict quarantine, and where wild animals, wolves, jackals, foxes, etc., play a part, their destruction should be attempted.

Anti-rabic vaccination of dogs anl cats, while apparently not very practical, may be attempted, very good results having been obtained in Japan by this method.

Finally, rabies is a preventable disease that should be wiped off the face of the earth. It has been done in Australia, and the application of the measures recommended would accomplish this over the world and eliminate this dreaded disease forever.

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DISCUSSION.

Dr. Maurice Couret (New Orleans): Dr. Hauser has covered the subject so thoroughly that there is hardly anything left for any of us to speak about. I would like to tell you some of my own observations with the virus of rabies and the antirabic treatment.

We are not sure at the present time just what the cause of rabies is. We know all about the disease; we don't know its cause. We can, however, make the diagnosis of the disease invariably by the presence or absence of Negri bodies in the brain of the suspected animal.

The method used at present at Charity Hospital consists in making sections of the hippocampus and cerebellum of the suspected animal and looking for the Negri bodies there. I remember about ten or twelve years ago I brought this method out before the meeting of the American Association of Pathologists and I was rather severely criticised by Park of New York, who thought that the method was dangerous and we ought to resort to animal innoculation to determine definitely whether an animal had rabies or not. We had been using this method for some 2000 cases before that time and since then we have continued to do so. There has never been a fatal consequence.

The virus of rabies has some peculiar characteristics. To my mind one is most striking. If you inject certain animals, e. g., the rabbit or guinea pig with the virus, the virulence is progressively increased. If, on the other hand, a dog or cat is infected its virulence is decreased and

finally lost if the virus is passed through the same species of animal. The virus in a cat received from Alexandria a few years ago, with very acute rabies, was lost after the ninth passage through the same species of animal (cats). The virus gradually lost its virulence and finally infection would not follow its injection.

Many of you are now protecting your patients against rabies with the virus now sold on the open market. Some of these methods employ dead virus. At the Charity Hospital we have been using the living virus as recommended by Harris of St. Louis. We have had most excellent results with this method—not a single case has developed rabies when the treatment was completed. The method has been in use now over 15 years. I cannot say as much for the old Pasteur method that used mostly dead virus for 21 to 30 days. The fatalities with this method was over a half of one per cent. For this reason I would certainly not recommend the use of dead virus to my patients until more evidence of its efficacy is definitely established.

The living virus as a method of protection has besides the advantage that a shorter treatment can be given with a more rapid immunity—a factor often wished for especially in cases of bites about the head. It is in these cases that I would fear most the use of dead virus, and until the evidence is conclusive that protection can be fully established in these cases I propose to hold on to a method that has proved its efficiency in these cases.

Dr. W. H. Seeman (New Orleans): Dr. Hauser's paper really covers the subject so thoroughly that, as Dr. Couret has remarked, there is very little left for any one to add to the facts brought out by him.

There is one thing I would like to emphasize, however, in regard to the caution he gave as to shipping dog heads into the laboratory for examination in the proper manner. We at the State Board of Health laboratory, and I presume Dr. Couret and Dr. Hauser have the same experience at Charity, very frequently receive dog heads that are absolutely putrid. Only last week, after writing a letter to a veterinarian about a previous similar occurrence, he sent in another head without any refrigeration or any preservative of any sort, and it was literally just teeming with hundreds of maggots. It was absolutely impossible to do anything with it. I doubt even with the most careful attempt at glycerinization we could ever have gotten any result from inoculation. That is one point I want to emphasize.

I am glad to have this opportunity to call attention to the fact that it is our experience that rabies is increasing enormously in the State of Louisiana, and I think over the entire South. Up to now we have done nothing in the way of legislation to attempt to curb this dreadful affliction.

To the remarks that Dr. Hauser made in regard to the treatment, I would like to add whatever emphasis I can and go further and say that whenever you are in doubt, give treatment. Don't worry about any effects from the treatment.

I am rather astonished at Dr. Couret's remarks in regard to the killed viruses that are now being so extensively used. My best information gives me the facts as follows: That throughout the world there have been at least from four to six hundred thousand preventative inoculations made with these dried vaccines, these killed vaccines. The simple vaccine killed with phenol and the Cummings, which is dialized and preserved with tricresol, have had very extensive use and it is a claim of the proponents of these methods that they have an advantage over the Hodges method or the Harris method or the old Pasteur method in that these paralysis that occur with those methods do not take place with these killed vaccines.

We have recently, from a matter of economy and also from a matter of safety, introduced in the State Board of Health distribution, these killed vaccines. We are using the Semple method, getting them from Mulford, and we have not had enough trial, of course, for our own statistics to lend any weight to the question. But I will say this much, that I looked up all available material before suggesting this change, which is a very economical one besides adding the factor of safety to the treatment, and I would hate to have the members of this society who will receive free of charge from the State Board of Health preparations of this character to carry away with them the thought that they are not getting any protection.

I don't know whether Dr. Couret intended his remarks to go just that far, but he certainly didn't give you any encouragement about using these methods. His experience has been greater than mine, I yield that freely, but I have not based my results of my analysis of the situation upon my own experience, but upon the experience of all the authority that I could get hold of in literature in regard to the establishment of this new method of treatment.

I certainly would have no hesitancy personally in depending on taking the treatment or giving it to any one over whom I had control or was held responsible for.

There is another thing that I would like to emphasize in regard to what Dr. Hauser has said, and that is in the treatment of the wounds. After all, that is the essential thing. There is a considerable amount of immunity that animals and

humans have in regard to rabies, and I believe, after Pasteur's treatment was instituted, that in an untreated group of cases only thirty per cent of those bitten developed rabies. Essentially, then, the important thing is to get rid of that poison—and that as early as possible.

I would like to add to what Dr. Hauser said by suggesting that where necessary an anesthetic either local or general be given so that a complete cleaning out of the wound and a thorough cauterization can be done.

Dr. C. C. DeGravelles (Morgan City): I want to thank Dr. Hauser for this extremely interesting paper. It strikes home with me. In 1925 I had an epidemic of twenty-two cases of hydrophobia; at least, I had twenty-two people bitten. Of these nineteen were bitten by three dogs and two by cats. The head of each animal was sent to the State Department and pronounced positive.

I believe that we have a definite work to do in the question of hydrophobia. The thing is getting to be a serious condition in the State. Every year we are getting more and more cases. This can be prevented. In Japan they have practically stopped hydrophobia by inoculating their dogs.

I believe that each and every man can accomplish a great deal of good by appearing before his police jury or his city council and advocate an ordinance that would make every owner of a dog inoculate his dog once a year. Those who refused to inoculate their animals should have them killed. We have adopted this method in my town and I hope we will be rid of hydrophobia.

It is a very pathetic thing. I saw one patient die who had bitten by a cat three years ago and saw him after he had the disease. When you have to take little children, as the majority of my cases were, little children five and six years old, and inflict this painful ordeal every day for twenty-one days, it amounts to something. Now why not get together and eliminate hydrophobia, which can be done if we will go at it in the right manner.

In regard to the living and the dead virus, I think my twenty-two cases were all treated with the dead virus which was sent to me by the State Board of Health. I think Mulford was the manufacturer and I must say that our results were 100 per cent.

Dr. D. W. Kelly (Winfield): I just want to report a case, the first case I have ever seen, and in the literature I have seen that the bad results we get are one in two thousand. We have in our town a dog trainer, Paul Otto. You people who are dog fanciers probably know Mr. Otto. He was bitten by a dog he claimed had hydrophobia. He took the serum and later I called to see him. I believed at first that Mr. Otto was developing hydrophobia until I got one of the extensive works on internal medicine and it described my case to a letter. At the end of a week he developed paralysis of the lower extremities. He had a fever and he was very nervous. I thought sure he was going to develop hydrophobia until I got hold of this work, a work Dr. Fitz had. I forget the name, but it described this case to a T. The symptoms blew over in a week or ten days. I am just laying stress on that for any fellow that is out in the woods and gets hold of one of these cases with paralysis following the serum. He is just up a tree unless he has got an extensive system of medicine, a good library to read up on it.

Dr. John Lanford (New Orleans): It is a little out of order, but if you wish Dr. Couret to reply, think he could do so.

Dr. Maurice Couret (New Orleans): It's just a question of opinion from actual experience with living and dead virus.

I admit that there is some danger with living virus as the Doctor mentioned. We have seen three or four cases of paralysis with the Harris and old Pasteur methods. Fortunately none were fatal—all recovered.

I want to call your attention to a few symptoms you will meet in cases of this kind. Symptoms by which you can differentiate street rabies from that following treatment and caused by the treatment. All patients taking the antirabic treatment will complain of mild headaches, or a little numbness here or there, some photophobia, but most common of all—dreaming. In rare instances there may be slight or extensive paralysis preceded by other symptoms of rabies. Hydrophobia is an early symptom of street rabies. Hydrophobia is never present in rabies occasioned by the treatment. The patient will drink and eat without trouble and is not at all disturbed by the sight of food or water. The paralysis may extend to the chest and upper extremities. It disappears as it has come—the parts first paralzed will be the last to return to the normal.

Dr. George Hauser (closing): I want to thank the members of the society for the discussion of my paper. I want again to emphasize that my reason for bringing this subject before you, is the great increase in the prevalence of rabies in animals throughout the State. When, day after day, in the examination of dog brains we find six, occasionally seven, of every ten brains examined positive, it brings before us the great increase of this disease within the last few years.

I want to emphasize the point mentioned by Dr. Seemann in regard to the care in sending in animal's brains from the country. So many of them are received absolutely unfit for examination. It is only by carefully sending these either in a preservative or better yet with sufficient ice that they can be properly examined. If they are received unfit for examination we have nothing to do but to recommend treatment to all those exposed to the infection.

In the cases of paralysis from treatment, I want to emphasize, as Dr. Couret said, that this can readily be differentiated from the street virus infection by having the patient attempt to drink. If it is a true case of rabies they will immediately show pharygial spasm, whereas if it is a case of fixed virus infection, they can drink very freely.

Of greatest importance and with greatest emphasis is the question of prevention. This disease is absolutely preventable by the use of proper methods, and especially going before your legislature or proper police powers throughout the different parts of the State and having the proper laws passed and enforced, so as to eliminate this disease entirely. In Australia it does not exist at all. In England it was eliminated until during the war, when the bars were let down and the disease again made its appearance. Since then the preventative measures have been applied and the disease is again extinct.

CARBUNCLE WITH ESPECIAL REFERENCE TO THAT OF THE UPPER LIP.*

C. A. SHEELY, M. D.,
GULFPORT, MISS.

Maurice Kahn said:

"Off and on for the last fifty years articles have appeared, calling attention to the occasional, and always possible, seriousness of these infections, and still the profession is far from being unanimous in its treatment, and that in considering the treatment of carbuncle it is interesting to note that almost every imaginable procedure has been advocated, including constriction hyperocemia; hot, wet applications; puncture of center and application of phenol injection; crucial incision; crucial incision and injection of the patient's own blood or antitoxin; horse serum; vaccines; roentgen-ray; vaccines with citric acid to increase the clotting time of the blood; galvano-cautery or immediate excision with the knife or cautery."

One needs only to visit some of the places where carbuncle is under discussion to find that there is no unanimity of opinion as to its treatment. It was my pleasure recently to be present at a meeting of one of our very selective Surgical Associations whose membership is so limited by reason of the very high requirements for standing of its members as to make it very exclusive, and at which carbuncle was under discussion, and I was amazed at the diversity of opinion as to its treatment.

This was true in spite of the fact that the pathology of carbuncle is alike, practically the same in all parts of the body. This is not as it should be—you, medical men, see most of these cases first, or the vast majority of them; and the outcome or the result, in a given case, is in a large measure due to your understanding and management of the underlying pathology, as well as that of the surgeon who is called to treat the occasional case.

So it seemed to me something might be gained by a review and discussion of this not very infrequent malady.

It is generally agreed that the staphylococcus aureus is the usual infective agent. This being true, there can be no controversy that the process starts in the skin, spreads by continuity and contiguity into the areolar fat and subcutaneous connective tissues, causing necrosis, and, I think it should be said, under pressure—skin pressure—aided by the strands of connective tissue columns underlying and stretched across the area involved, causing a necrosis—a necrosis which progresses until it either relieves itself (which is not scientific) or is stopped by the surgeon by adequate operation.

Carbuncle starts as a pimple—the vast majority never progress further than this stage and recover as such. If, however, they do not the necrotic process advances to

*Read before the Mississippi State Medical Association, May 10, 1927.

adjacent tissue, then there is elevation of the center, with one or more punctuate openings and redness, but the surface elevation does not correspond to the area of necrosis which is going on in the deeper layers underneath, for it is just here, at the rim, where the pressure is greatest, and if operation is undertaken, must be so designed as to relieve the pressure at the rim, if the greatest relief is obtained and the arrest of the necrotic process is accomplished.

Not only should the skin be incised well out to and beyond this rim of pressure, but the strands or columns of connective tissue holding down the skin should be severed by undercutting, well out to the rim of the affected area.

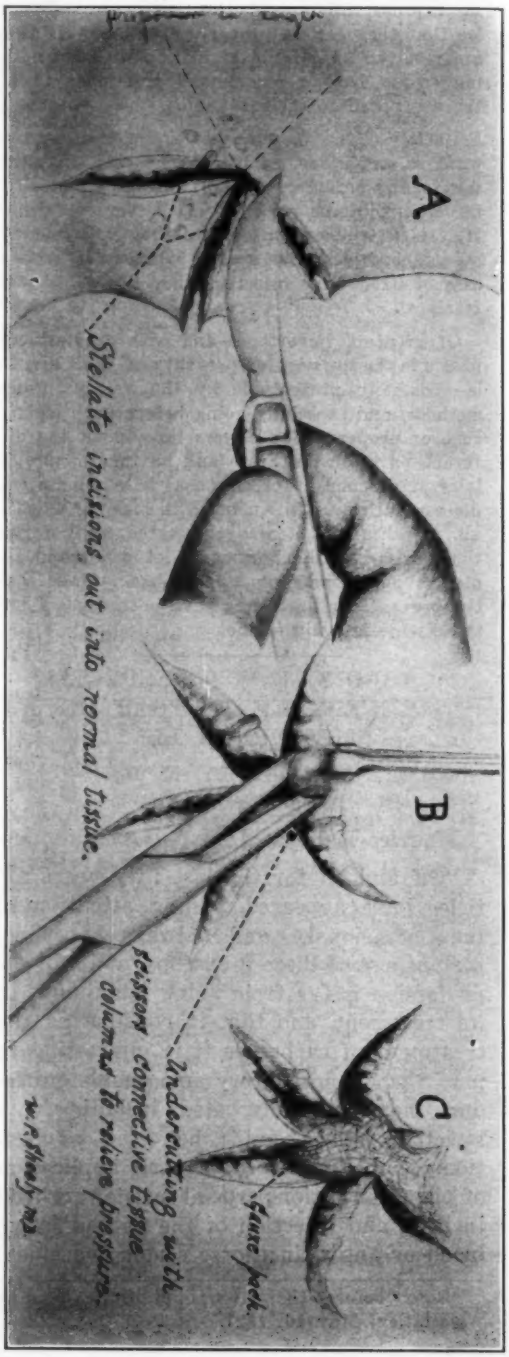
Now, when one has done this, there is almost instant cessation of pain, the temperature drops sharply, and almost invariably the necrosis spreads no further and recovery begins.

Very often the operator may just here with a sharp curette, remove most of the necrotic material, and loosely pack the cavity with some type of gauze.

If there is anything fortunate about carbuncle it may be said it develops most often in areas of the body where the blood vessels are not very large or numerous, that about the face being an exception, and, as it is a necrotic process, accounts for its very greatly increased mortality when it occurs in that region.

Operation, under local anesthesia, can be done as a rule, most thoroughly for carbuncle on all parts of the body except the face; here, it is not only strongly contra-indicated and positively dangerous, but inadequate. For operation for carbuncle of the face a general anesthetic is imperative, to be thorough.

Carbuncle of the face is not unlike carbuncle in other locations, except that the area is very vascular, the connective tissue spaces are large and loosely connected, as evidenced by the large swelling, the muscles are attached to the skin largely, the veins have no valves and anastomose freely with each other, forming regular plexuses so that infection once it gets into these



channels can reach the sinuses of the brain readily.

Being a necrotic process under pressure it is no respector of persons, places or things here, as elsewhere in the body, and this is the real cause of its greater danger when it occurs in the region of the upper lip; and this makes it all the more imperative that early adequate operation be done before the process of necrosis breaks through and thrombosis in the venous channels occur, and even though it has occurred, a careful adequate incision, with a sharp knife through the skin only, and thorough undercutting of the flaps, preferably with scissors, under general anesthesia, is the best and safest procedure; can do no harm, usually arrests, and may stay the further progress of even a thrombotic process, which, under any other course is inevitable, and so prevent it becoming general and widespread. Once there is a septice thrombophlebitis, or those in which there is septicemia with positive blood culture, there is no treatment of any avail; so far as I know.

CONCLUSIONS

(1) Carbuncle is caused by the staphylococcus aureus infection under pressure by the elastic skin, held down by the connective tissue strands, resulting in necrosis.

(2) The surface elevation does not correspond to the area of necrosis which is going on in the deeper parts, so that center injections, puncture with knife or cautery, and inadequate crucial incisions do not meet the indications of the pathology present.

(3) The area of greatest pressure is at the "rim," and treatment to be adequate must be so designed as to relieve this pressure.

(4) Carbuncle in its second stage is definitely surgical in all parts of the body, and adequate operation, in conformity with the pathology, is effective.

(5) Thrombophlebitis and wide spread septicaemia are not primary, but are the result of late or inadequate measures.

DISCUSSION

Dr. H. R. Shands (Jackson): It is my pleasure to be able to agree practically in toto with practically everything Dr. Sheely has said. He has presented the subject very clearly, and it is one of considerable importance. Many carbuncles have been neglected. I think many of us do not recognize the very great danger of carbuncles of face and especially of carbuncle of the upper lip. Fifty per cent of such cases die. I remember in the charity hospital when I was an interne seeing them excise the upper lip, take carbolic acid and cut it off, so much did they recognize the danger of extension to the sinuses of the brain. It is our custom to excise the carbuncle. It gives great relief, and usually we get prompt recovery. Of course, on the face that is impossible, because of the scar. The method Dr. Sheely uses is one that Dr. Naver(?) describes—a many-crossed incision, being sure to lift up flaps. It is surprising how the infection comes out, and the next morning you will see great improvement. I personally prefer to do that with a cautery knife. It does just as much good as complete excision.

IN WHAT WAY CAN THE INTERNIST OR GENERAL PRACTITIONER HELP IN THE CAMPAIGN AGAINST CANCER?*

JOSEPH COLT BLOODGOOD, M. D.,

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Some five years ago, during a national cancer week and, as I recollect it, the first cancer week, I met a friend and colleague of mine who had been a general practitioner in Baltimore for a quarter of a century and more and had a very large practice among all types of people as well as a hospital service, one who had always been interested in his State Medical Society and one who had received from this society its highest gift, the presidency. He said to me: "Bloodgood, how is your cancer campaign getting along?" My answer was: "It is not my campaign, but yours," and I am repeating this statement to this Section on Medicine. The campaign against cancer, like any other problem in preventive medicine, or public health, or personal hygiene, belongs to no one

*Read before the Mississippi State Medical Association, Jackson, Miss., May 10, 1927.

specially, but is part of the responsibilities of every member of the medical profession.

Surgeons conceived and practiced the complete operation for malignant disease which, in the beginning, was and still is the only positive cure for cancer when it can be done. Billroth, in 1882, conceived and successfully performed the complete resection of the stomach for cancer. Ten years later Halsted of Johns Hopkins had perfected his complete operation for cancer of the breast. No matter where the cancer may be situated, the principles as outlined by these two pioneers remain the same, and the detailed technic of the radical operative procedure can not be improved upon.

In spite of anesthesia, wound technique, and the wonderfully executed complete operations for cancer, no matter where situated, cancer was rarely cured, and the failure to cure was not the failure of anesthesia, nor wound healing, nor the radical dissection which removed all the possible local disease. The failure was distinctly and entirely due to late intervention. Up to 1900 most surgery was employed as a last resort. Cancer can be rarely cured when its surgical treatment is a last resort.

The cure, therefore, of cancer belongs, first, to those who are responsible for the education of the people. When Jenner discovered the protection of vaccine against small pox, it was not his duty alone to see that the mass of the people were informed of this new protection.

It is and was the duty of surgeons to inform the general medical profession and the public of the fact that complete operations as a last resort for cancer in its late stages was rarely curative. By 1900 many surgeons throughout the world who were familiar with their five-year results, had begun to realize that earlier intervention was essential for the cure of cancer. By 1913, in this country, the American Society for the Control of Cancer had begun its educational campaign. By 1920 there was sufficient evidence of the value of this campaign. Yet, by 1927, the remark of my friend to me was still the rule. The large group of the medical profession said to the small group: "How is your cancer campaign getting along?"

Let me repeat here the evidence which points the way to the cure of cancer. Up to 1900, as recorded in all the great hospitals of the world, patients came into the surgical clinic with cancer in its clinical stage. By this I mean that it could be recognized by sight or touch, and often by cachexia. In this stage in more than one-half of the cases cancer was a hopeless disease. Complete operations could be performed in the remaining half. At the end of five years less than 20 per cent were living free from recurrence. With each succeeding year more and more died of cancer. Permanent cures of ten years or more were very rare. The best results were in cancer of the skin and lower lip, perhaps the worst results in cancer of the stomach. In 1913 my figures showed in cancer of the stomach but two per cent of cures at the end of five years, which was ten per cent of the cases in which the stomach could be resected. During this period in which cancer came for treatment in its clinical stage and in which one-half were hopeless, in each locality—mouth, breast, skin, stomach, colon, rectum, uterus—the relative frequency of benign to malignant lesions was eighty to twenty per cent.

I am confident that up to 1900 Billroth's resection of the stomach; Halsted's complete operation for cancer of the breast; Wertheim's radical operation for cancer of the cervix; the huge dissection of local lesions, glands and often with part of the jaw for cancer of the tongue, lip or cheek; laryngectomy with and without excision of the glands; Kraske's resection of the lower end of the rectum; the complete resection of portions or even one-half of the colon; and amputation of the extremities—I repeat, these operations from a technical

standpoint were as well done up to 1900 as they have ever been done since. I am willing to grant that we have lowered our operative mortality and this can be partly explained by improvements in anesthesia, more perfect healing of wounds (due to rubber gloves) and better preoperative and postoperative treatment. But we must admit that much of the lower operative mortality is not due so much to our art and science, but can be better explained by the fact that our patients, correctly informed, seek surgery before their general health is lowered by the influences of the malignant local disease.

Now you have in mind that, in spite of this wonderful surgery, the best chances of curing malignant disease, up to 1900, was 10 per cent. Bear this in mind. Between 1900 and 1920—twenty years, is the period of transition. Surgeons had found themselves. Their entire energy was not exhausted in their operative work. Their vision could now go to their five-year results. They could realize the wasted hours in the operating room. For example, one hundred operations for cancer of the breast—four hundred hours of the operating team, twenty five-year cures—three hundred and twenty hours wasted, eighty hours valuable. It was the surgeons, who, realizing the cause of these results, began to bring this correct information to the profession and the public. Then in 1913 began the tremendous help of the American Society for the Control of Cancer, largely financed by law women and men. The results of these years are well shown by the figures of 1920, and I will give the figures of the Surgical Pathological Laboratory of the Johns Hopkins Hospital in comparison with the figures already recorded here for the ten years up to 1900. Inoperability has fallen from more than 50 to less than 10 per cent; five-year cures have increased from less than twenty to more than fifty, which means a total of cures of more than sixty instead of less than ten. The proportion of cancer among the lesions in each locality has been reversed—where formerly it was eighty malignant to twenty benign, it is now almost eighty benign to twenty malignant. This is especially true of lesions of the breast, skin, oral cavity and benign connective-tissue tumors and sarcoma. One hundred breast operations for cancer now require about one hundred hours, where formerly they required four hundred hours, and of those one hundred hours less than forty are wasted, while formerly of the four hundred hours more than three hundred and twenty were wasted.

Another remarkable feature has taken place. Not until 1913 have I a record of an amputation for sarcoma of bone which lived five years or more, and when I reported the results of seventy sarcomas of the extremities in 1920, there were but two five-year cures. These patients are still living. Each year more patients are living and apparently well beyond the five-year period, we have just completed the figures for 1927. Among five hundred cases of sarcoma of bone the five-year cures are apparently reaching 20 per cent.

It is important for the medical profession and for the public to realize that this almost miraculous change has been due to the education of the public and the profession by a relatively very small group of individuals who have been tremendously helped by the daily public press. To journalism we must give due credit.

It is difficult to picture what the possibilities will be when the entire medical profession does its part in this campaign against cancer, and the campaign against cancer is only a part of the larger public health program. When all of the public press give the correct facts in the news columns, the general public will be protected by information which is as valuable for their protection against cancer as the antitoxin is protective in chilldren against diphtheria.

When this educational campaign against cancer is carried to its logical conclusion,

every child, in the primary school will be given a systematic graded course in personal hygiene, preventive medicine, and how to recognize the earliest symptoms of trouble, and how to report at once to their parents or teachers. With few exceptions, children under the high-school age can be taught most of the rules of health and rules of conduct. Correct information at this earlier age is doubly valuable, because all rules of health and rules of conduct accomplish their greatest good when they become habits—good habits just grow stronger with age. No matter how well we teach the children, there will always be new information due to new discoveries in the medical sciences, which must reach the adult population, if we wish them to have the greatest effect. The medium for broadcasting these messages from the medical sciences is the daily public press, the radio, and lectures to children who will carry the information to their parents; to social workers and nurses, who will carry it to those who are not reached by other means.

I trust I have convinced you that the campaign against cancer is your campaign —the campaign of the entire medical profession.

But every doctor has a personal part. His children, his family, his friends, and the larger group—his patients. Never before in the history of medicine can the good physician do more than today as an individual capable of giving correct information about personal and public health, preventive medicine, and the earlier recognition of disease. To your family and friends you must give correct information at every opportunity. It is a difficult art to acquire, to give this advice in such a way that it will be well received, accepted, understood and followed. There are added difficulties for the doctor—he must practice what he preaches. When your patients come to your office or send for you, you have a new responsibility—first, you must recognize and treat their present illness. But today your responsibility does not end there. Even if unnecessary for the recognition and successful treatment of the present illness, there should be a thorough examination for evidence for or against other possible latent trouble. But there must be more,—you now become responsible that this patient of yours is correctly informed, so that in the future he will consult you in time when threatened with illness. But today, there is still more than that, and perhaps the most difficult thing of all—the protective value of the periodic examination must be presented to this patient.

Never before has the ordinary practice of medicine been more difficult no matter what your patients consult you for—you must not forget the teeth,, even a roentgen ray film of the teeth, the nasopharynx and sinuses, hearing and sight, proper food, avoidance of constipation, proper exercise, appreciation of the value of fresh air and sunlight, instruction how to do work with the least worry and anxiety. Be vigilant for foot trouble, and, in young people, for faulty position and spinal curvature; the care of the scalp and the skin; the irritations of nipples not only in women who are nursing children, but also in those who are not. Never must you overlook overweight or underweight. Think of toxic goiter. You must recollect when certain laboratory examinations are essential—Wassermann, metabolism tests, blood chemistry, the proctoscope, roentgen-rays of mediastinum and stomach; a vigilant history, a physical examintion. In the past we have dwelt too much on the pulse, the coated tongue, the temperature, the stethoscope—all important, but only a part of examination, and—most important of all—in our education of children, in our education of the public, in our advice to family and friends, in our conversation with patients, whether they have sent for us because they are ill or for a periodic examination, we must bear in mind that all this must be done in such a way that

fear and anxiety is not introduced. Remember, Kipling's saying—"and fear crept in." In introducing education as a preventive measure in modern medicine, fear must be kept out and confidence put in.

I am placing this last, because I want you to remember this first, that the evidence which suggests the life-saving value of periodic examination is the actual results of cancer of the cervix today in spite of the tremendous value of radiation. If married women who have borne children desire the greatest protection against cancer, they must submit to periodic examinations after the birth of their children. To report at once after they noticed anything unusual in the menstrual period of its reappearance after the menopause is very helpful for protection against cancer of the cervix, but for the greatest protection there must be, in addition, periodic examinations.

The lowest infant and maternal mortality rests upon medical supervision of the expectant mother. This is settled.

Parents must be impressed that their children will receive the best protection and nursing care.

By medical supervision we mean when they are taken to their doctor at frequent intervals. Never wait for an illness.

All men should know that their first periodic examination should be before the age of fifty, and best before the age of forty, and at that periodic examination the prostate should be examined.

My studies now over a period of thirty-four years convince me that today the cure of cancer rests upon the education of children before the high-school age, getting correct information to the adult population, and bringing to the medical profession the newer methods of recognizing cancer in its earlier stages or the lesions that precede cancer, emphasizing again and again to surgeons the danger of incomplete operations in apparently innocent tumors, like moles, warts and nodules, and the necessity for introducing into every operating room the modern methods of tissue diagnosis by frozen section and the staining technique. When cancer becomes a curable disease, it is largely a microscopic disease and it must be recognized in the operating room, during the operation, and the indicated operation must be completed at once as soon as the microscopic examination of the frozen section of the stained living tissue is completed. As we educate the public we must educate ourselves and we must make the diagnosis of microscopic cancer as perfect as Billroth and Halsted and their group made the complete operation. Theirs was minor diagnosis and major surgery. Ours must be a major diagnosis and minor surgery. They made cancer and clinical cancer change from a hopeless disease to one in which the chances of a cure were ten per cent. By education we can make cancer a microscopic disease with the chance of a cure of seventy per cent or more.

DISCUSSION.

Dr. W. W. Crawford (Hattiesburg): We are indebted to Dr. Bloodgood for the very able presentation of this subject of cancer. We are indebted because of the fact that we have had the privilege of hearing one of the masters on this subject, a man known and recognized as an authority on the subject of cancer not only in this country but abroad as well. I say without fear of contradiction that no one other member of our profession in America has done quite so much toward educating the general public and the professional public in the fundamentals of this very important subject. He has today in a very graphic way called your attention to certain phases of this disease, appreciating, as he does, that the very important step in the correction of this great malady must begin in our profession. Therefore I think it is most timely that he should have been invited and acepted the invitation to come to Mississippi again. It was my pleasure to spend about a week with Dr. Bloodgood visiting some several of the most populous towns in Mississippi five or six years ago. The doctor presented his subject in the way that only he can present it, and as I think back over the years that have elapsed since that time I am conscious of the fact that he sowed seeds

then that are bearing fruit today. I say that because everywhere you go every clinic in Mississippi is being confronted with more and more cases of cancer. I may say that, fortunately, we are seeing more and more early cases.

Those of us who have practiced medicine in Mississippi for more than a quarter of a century know that in the early years of our practice it was a common thing to have people come to us who were in the throes of hopeless cancer, whether involving breast, stomach, or uterus, those being the three most frequent sites. But today, thanks to this scheme of education going on, a great many men and women come to us each year with these suspicious lesions in the breast that fortunately can be proven in a number of instances to be benign; a great many women are coming to us today, who formerly did not, with suspicious discharges, indicative of some abnormal menstruation, that formerly would have been neglected. Through the channel of public education along this line they have been made to recognize the importance of at least having an intelligent survey made of their cases. Much has been done along this line, but we all are conscious of the fact that much more must be done, when we think of cases such as the poor woman who came to see us a month ago, with a hemoglobin of perhaps 20 per cent., who had bled and bled from a tremendous cervical cancer until she was almost in extremis. She told me that she had not consulted a doctor because her neighbors had said that in all probability she was going through change in life and the bleeding to which she had been subject was inevitable and nothing could be done for it. So she suffered on in silence until fortunately she consulted a doctor who recognized the importance of her trouble and sent her in to see us. He was the first doctor she had consulted. The lesion was so far advanced, a great cauliflower mass filling the vagina, that before we could use roentgen-ray we had to use the actual cautery to burn away this mass of tissue. We still have too many cases of that type; we still have too many people coming in with stomachs almost occluded, having almost complete obstruction of the pylrous and unable to take even liquid food. We shall still have such cases until we individual doctors accept the responsibility in these cases coming to us. Last year in my paper on malignancy I called your attention to the fact that every man in every community who might make two or three talks during the year to groups of women, parent-teacher associations and other groups of women, would be astonished at the response he would get from such information. The people are hungry for it and are ready to follow the directions that we may give; and the doctors really are more alert, by great odds, than in former years. When people come to them they are recognizing the necessity for action, and if it is not in their province to handle the case they are referring them to institutions where they can have the proper treatment. But that is only a part of the story. It is not enough for us to sit supinely by and wait for the people to come to see us. Dr. Bloodgood has told you of the notable fact that in and around Baltimore they are seeing more early, precancerous conditions than ever before in history; they are seeing more there than in any other section of the country; and he has modestly told you why—because in and around Baltimore this education of the public has been carried on in a systematic manner and is being carried on by such men of the profession as Dr. Bloodgood, until the people are afraid to disregard these things but if the least irregularity comes up want to consult their doctor and find out what the trouble is. Now, you can do that. There is no man in his community who is more outstanding than is the doctor; it is simply a question of our exerting ourselves just a little day by day and taking advantage of the opportunity to present this message to the people, until the time will soon come when in Mississippi we can see the same thing that they see in Baltimore.

In looking up last year the statistics on cancer for Mississippi during the registration period, from 1913 to 1926, I was astonished to find that both the death rate and the incidence of cancer had increased tremendously in Mississippi; that cancer had increased in this state 46 per cent in that period of time, in spite of the fact that the profession is more alert today than in the past. You may say that perhaps a percentage of these cases are being recognized because the profession is alert, but the death rate has not been reduced to that irreductible minimum that will be possible when we recognize, particularly, precancerous conditions.

Again I want to congratulate this association upon the privilege of having had the opportunity to hear Dr. Bloodgood.

Dr. C. L. Barber (413 S. Washington St., Lansing, Mich.): I do not want to discuss this question after so able a man as Dr. Bloodgood, but I think I have learned more about various things in life by asking questions than in any other way. My mother said I was the worst boy that she ever saw about asking questions, and I have kept that up. I was in hopes Dr. Bloodgood would tell us what cancer is. Will you please tell us, Dr. Bloodgood, what cancer is, and will you tell us whether a cancer of the breast or uterus or any other organ of the body is the real disease or is it the local manifestation of a constitutional blood disease? I have read a great deal about cancer in the last few years, and I have heard a great

many men talk about cancer. I have heard one man who teaches that cancer is a blood disease and no matter how much you remove locally by radium or knife or roentgen-ray it does not cure the cancer. Whether he has not been able to get it in time, or not, I do not know. Another man teaches that cancer is caused by an imbalance between the chemical constituents of the body, too much salt and not enough potasium, etc., an imbalance between the different elements. Another man says he can diagnose cancer by analysis of the blood, as well as syphilis, tuberculosis, gonorrhea, and other diseases, claiming that blood is liquid tissue and no matter what you have in your body the blood contains it all—the good, bad, and indifferent. I should like very much to have Dr. Bloodgood enlighten me, as well as the rest of you, on that subject.

Dr. Bloodgood (closing the discussion): I should like to answer that question. You are from Michigan, I believe, Dr. Barber. Do you know Dr. Peterson? (Dr. Barber: Yes, he is a warm friend of mine.) You did not learn from him that cancer is a constitutional disease, did you? (Dr. Barber: No.) Who gave you that opinion? (Dr. Barber: Dr. Dougdeel(?) of Boston, Fields of New York, Coke of Chicago, and some other man in the West whose name I don't recall.) I can only conceive of learning of cancer from students of cancer, from men who have devoted their lives to the subject of cancer. There is always a difference of opinion, and it is quite possible we are all wrong. Remson, who wrote the chemistry I studied at the University of Wisconsin, wrote a book that my boy will not study because Remson's theories were wrong. I can only tell you what the great majority of students of cancer say about it. As a Yale professor said, "You can always tell Harvard students, but you can not tell them much." Now, I can tell you what I think about cancer, but not much. The majority of students think cancer is a local disease; it is a group of cells, just as we are a group of cells. We originate by the junction of male and female cells and a multiplication of those cells, the cells ultimately dividing into three groups, ectoderm, that forms the skin and endoderm, that forms the lining of our alimentary tract, and the tissue between. Those cells that form the skin and those cells that form the endoderm are cells that we call epithelial, and they line not only our skin and our mouth, but are also the cells that grow out and ultimately produce glands. So the epithelial cells and the cells lining the glands belong to one group of cells that we call epithelium. The nervous system is an epithelial cell; the crystalline lens, through which we look, is an epithelial cell. All the other cells are connective tissue cells. Now, in our body, when we are born, there are two groups of cells. There are those cells that are functioning, either epithelial or endothelial tissue; the cells that form the brain and the liver and every other organ of the body. We might speak of them as normal adult cells, living, receiving oxygen from the blood, and giving off their by-product. All are under some control, because we all grow, reach a certain size and shape, and die, and at autopsy a majority of our organs are normal. But in every individual born into this world there is a group of cells misplaced. In early embryonic life, when the cells are multiplying and the different cells taking on different functions, the cell that forms the skin, another that forms the crystalline lens, and another that forms the brain all are the same group of cells. But there are misplaced cells. When you are born you may have a nevus; that is too much blood in one part. You may have a pigmented mole; that is, pigment in a part where it does not belong. The cells in that mole are epithelial; but they will never form skin and will never form a crystalline lens; they are dormant. They are in our neck, in the bronchial cleft; they are in the back. There is passing down our vertebral column the notochord. There are two groups of cells, normal cells and misplaced cells. Either may form tumors. Take a case I shall show tonight, a person with a black pigmented mole on the arm which had been there all his life. Suddenly it begins to grow, and the epithelial surface desquamates and weeps and bleeds. If you take it out and look at it under a microscope, and take out another mole that is not growing and look at it under the microscope, you will find they are entirely different. At death there will be pigmented spots all over the body, and in each will be these cells. That is cancer from a congenital rest.

Take another case; take the man who smokes. When he was born his mouth was perfect; when his teeth came in they were perfect. He begins to smoke, and his teeth get rough; he pays no attention to his mouth. A white patch appears. If you cut that out and look at it you find the cells are different from those in the mucuous membrane. If you cut it out nothing happens, but take another case. The teeth get rough, and the man does nothing about it. The white patch becomes irritated. A piece drops off, and as the piece drops off the ceiling becomes ulcerated. You take out the patch, but the man comes back with glands in the neck. You take them out or give radium. What happens? The man with the patch is still your friend. the man with the ulcer is dead.

If you take a rabbit and put tar on its ear, the skin becomes irritated. After a while if you cut that out and look at it under the microscope the cells have the appearance of cancer; you can not

tell it from cancer. But if you stop irritating the ear it disappears. With the next set you keep on with that irritation longer, and when you take out the irritated skin the disease does not disappear; the animal dies with a recurrence.

That is as far as we can go. Cancer is a local disease. Cancer does not begin with cancer. (This man has a spot on his nose that is more dangerous than any other spot on his nose. It is not cancer; it may never develop into cancer. It is not scaling. If it should get red or scaly or cracked he ought to have something done for it.) Cancer does not begin as cancer. It may begin as a local disease of the skin. What is that? The cells get beyond normal limits; they migrate, just as after an operation or a wound there is granulation tissue. Now if these cells get into the blood vessels or the lymph vessels they will lodge somewhere else and produce another cancer; it does not matter whether it is sarcoma or carcinoma, or whether the cells are of embryonic origin or of acquired origin. Beyond that we do not know. We do not know why in two identical moles, one in Mr. Jones and one in Mr. Brown, the cells in one become malignant and in the other do not. We do know that the longer you live, the more likely it is to become cancer. A corn seldom becomes a cancer, yet a corn in the mouth does. We do not know whether, because your father and grandfather had cancer, you are more likely to have cancer. We do not know whether it is caused by a vegetable diet or a meat diet or faulty sugar metabolism. We do not know what causes cancer to become cancer. That is all we know; everything else is speculation; and it is on that that we hope to cure cancer, as far as we can today. The cure of cancer is for people to come to you for little things and for you to learn to recognize little things. Ultimately Paget's disease of the nipple will be cured with soap and water; ultimately the majority of cancers of the skin will be cured with soap and water, because the majority of cases of irritation of the skin will disappear with cleanliness and medicated alcohol, and a little vaselin to add to the natural oils. With a lump in the breast we have to explore; we have to explore in the case of a stomach with a filling defect. You have to take roentgen rays just as quickly in indigestion as in fracture. You don't wait six weeks after a fracture to have a roentgen made; yet you wait a year after indigestion to have one made. How long does a woman wait to have a vaginal examination after she begins to have a discharge? How long does she wait to have you examine the lump in her breast after she has felt it?

MENTAL DISORDERS AND SOCIETY*

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In speaking on this subject we must consider the following heads: (1) society; (2) individuals; (3) responsibility of society to its members; and (4) responsibility of members to society.

Society is composed of many individuals of different types, possessing individual reactions, held together by an imaginary bond or union which keeps mankind together, consisting in a certain degree of mutual weakness and dependence. It may be compared to a large organism made up of a multitude of minute organisms, the well being of the former depending to a large extent upon the proper co-ordination and actions of the latter.

Society has formed certain rules and regulations, laid down certain dicta which must be followed by its individuals. These restrictions are in utter opposition to man in his primitive state and hence certain of the normal instincts, wishes and desires of the component parts of society are rendered subservient to the wishes of the whole.

Under the caption of the prevention of serious consequences to society and to themselves we must consider: (1) the prevention of crimes by the insane; (2) the unjust punishment of the insane for crimes; (3) permanent segregation and confinement of the criminal insane, and (4) laws regarding investigation of criminals suspected of being insane.

It is the duty of society to watch over its individual members, to report and investigate any abnormal actions of individuals so that a diagnosis of insanity may be made before a crime has been committed. It is a common thing to be told by families of the peculiar actions on the part of a member for months or even years

*Read at Sixth District Medical Society, Bogalusa, La., November, 1927.

before consulting a physician. Every insane individual is a potential criminal and if society can be educated to this fact most of the crimes committed by this class can be prevented. Education of the public, cooperation by the health units and social workers can here work untold wonders. Education should begin in the schools.

In considering the unjust punishment of the insane, we are confronted with the responsibility of individual members of society to society. Any person or persons of sound mind should be held accountable for their actions. Our whole social structure progresses or retrogresses according to the actions of the individual units. On the other hand, just as insanity precludes anyone from enjoying the full privileges of mankind, decrees the subject incapable of exercising the proper judgment in the management of his affairs, it is but right and just that these subjects should be looked upon as incapable of deciding right from wrong. We should be broad enough, sober enough and intelligent enough to throw aside "The Call of the Wild," vengence in the case of the insane. It is absolute murder on the part of society to exact its pound of flesh from those not responsible. The late Dr. Frank D. Lydston, Professor of Criminology in the Medical Department, University of Illinois, in his wonderful book entitled "Diseases of Society," witnessed two hundred and twenty legal executions and in his work he very aptly says that he was present at two hundred and twenty *"legal murders."* He then goes on to say that future generations would see no more legal executions and that due to the progress of science, all criminals would be found mentally diseased, irresponsible, and placed in confinement which would be regulated according to the classifications of the medical board passing on them. I am of the same opinion as this noted author and teacher.

Under the heading of segregation, I mean not only confinement to insane asylums, confinement to state farms and state hospitals, but confinement to separate and distinct institutions for both males and females. By the association of the two sexes, that great driving force, the sex instinct, which would perhaps lie dormant in institutions for the different sexes, is kept active and comes to the surface, often aggravating these mental disorders. A subject once adjudged a criminal insane should never be released because it is impossible positively to state that these criminal tendencies may not again become active.

In considering necessary laws regarding the investigation of criminals suspected of being insane, it behooves society to prevent as far as possible the recurrence of such cases as the Thaw case and the Leopold and Loeb case. Each state should have laws making it incumbent upon every judge, if for any reason at all there is a question of sanity, to order an inquiry into this question by a lunacy commission. This commission should be composed of the heads of the state psychopathic hospitals and three other competent psychiatrists. There should be a fixed fee for this service and the decisions rendered by this body should be final. If the decision is insanity, the subject should be sent to a state institution for life; if the decision should be that the accused is sane, that should preclude any plea along these lines and the case tried on its merits.

Just as the individual has certain responsibilities to society, so has society to its individuals. It is the aim of every nation to speak of its manhood as being superior to that of another. It is the dream of all that some day the world will be peopled by a superior being, both physically and mentally, and toward that goal it is necessary that we strive.

If we but take stock of present day conditions and consider the number of dependents we have confined to our state institutions, and of the facts known to science, we are bound to hang our heads in shame and say, "It is through our fault."

These conditions, to a large extent, can be prevented, and if we wage but half the fight against mental disorders that we do against tuberculosis, it would be but a short time that a notable change for the better would take place. Insanity is to a large extent preventable, and right here is where society should be blamed for gross negligence.

By education the public can be made to understand the methods that we may use to better ourselves, the ultimate good to be gained and the amount of sorrow and suffering to be prevented, provided they avail themselves in a legitimate and intelligent way of the scientific advice and facts placed at their disposal.

Before marriage is considered the mental make-up of the contracting parties and their antecedents should be studied, the possibilities of developing insanity gone into, and if great, the marriage advised against. The history of social diseases should be investigated, and if present on either side, the diseased barred from marriage. Every syphilitic case is a potential case of insanity and no case should be discharged as cured unless a thorough neurological examination, including a study of the spinal fluid is made. Cases of gonorrheal infection should be considered more seriously, because, in my opinion, quite a number of mental disorders can be easily laid at the door of this disease. Many women are forced through this infection to sacrifice at the shrine of surgery glands of internal secretion which often bring about a mental upset.

Epilepsy which may be transmitted to the offspring and sufferers from which often develop true psychoses should be debarred from marriage or at least rendered sterile.

All cases belonging to the defective developmental group and all cases of insanity should be sterilized to prevent propagation, because in our present state of knowledge, it seems a clear cut fact that heredity plays an important role in populating our state institutions. Individuals who show evidence of an inferior mental make-up should be guarded against their own folly of striving for a goal beyond their ken.

The normal individual is the one who is able to adjust himself to these ever-changing conditions, who is able to satisfy his desires by accomplishing or attaining certain objects in a way not in conflict with social custom. Due to the fact that certain desires are unattainable, mankind is compelled to repress a great number of these and to force them to the subconscious—that region where unfulfilled desires are abandoned for something nobler and better as progress continues steadily upward.

From these facts it becomes plain that the adjustment of the individual to his surroundings is purely a mental function, which in a general way may be called mental life. The broader and more pliable the mind the more readily a proper adjustment is made, and, conversely, the poorer the mind the harder the adjustment. It must necessarily follow that those individuals with a mental disorder are very apt to be unable to adjust properly, and they are said to be in conflict with society.

Depending upon the limits of adjustability we have certain grades of mental disorders, and depending upon the type of reactions we are able to classify these as specific psychoses-understood by the laity when called insanity.

Insanity is a symptom complex resulting from a pathological brain, either congenital or acquired, characterized by abnormal acting, thinking and feeling, which becomes more or less fixed and renders the subject a danger to his fellowmen and incapable of normal adjustment.

In analyzing the above, the facts stare us in the face, that those suffering from certain types of mental disorders are not and can not be held responsible. Janet says the difference between a psychotic and a normal individual is that the former acts

without thinking while the latter acts only after thinking.

The ideas maintained regarding the causes of these abnormal psychic reactions are many, and we have: (1) the Lombrosian theory of heredity; (2) the Mott theory of Endocrinopathies; (3) the Freudian theory of inability to sublimate the sex libido; (4) Jung's theory, that as a result of present difficulties placed in the way of the individual and so preventing a sublimation of the libido there is set up a conflict which brings to the foreground primitive ways of using the libido; (5) Adler's theory that there is a conflict resulting from a desire to dominate but which is frustrated by an inferiority complex based upon some inherent organic inferiority; (6) Kempf's theory of a segmental stimulation resulting from conflicts; (7) the theory of the psychoses resulting from experiences along the pathway of life. Each and every one of these theories have some good in them and they all have their followers. I will not attempt to separate the wheat from the chaff.

The light in which mental disorders have been considered by the public has changed from time to time. One of the saddest chapters in human history is that describing the cruel and inhumane manner in which the insane were treated in times past. However, this custom was not common to all nations and all times, in fact, it had its origin in the ignorance and superstition of the dark ages of Christian Europe.

Whatever may have been the customs, of handling and ideas regarding insanity, with peoples before the ancient Greeks, there is evidence that the Egyptians were both enlightened and humane. It is certain that the Greeks had sound theories regarding its nature as a disease, to be treated by medical and moral means, as is shown in the medical doctrines of Hippocrates.

Beginning about the second century of the Christian Era a great backward step was taken by society. Theories that insanity was due to sorcery, witchcraft, the curse of God, and demoniacal possession were held and these unfortunates subjected to neglect, cruelty and torture. This attitude continued after the middle ages and it was not until the eighteenth century that any marked advance was made. Since then there has been a slow but steady improvement in our ideas both as to the cause and handling of these conditions.

Society should realize that these patients are sick both in body and soul. To the psychiatrist even today it is a common experience when going into the history of these patients to have the relatives conceal and evade the truth or throw up their hands in horror at the mention of a mental disease. What more right has the heart, stomach, kidneys or lungs to become diseased and function abnormally than the nervous system? None!

As we become more enlightened, understand better and appreciate more fully the utter incapability of these individuals to take care of themselves, meet their fellowmen on an equal footing and adjust themselves normally, it becomes incumbent upon society: (1) to aid these abnormals; (2) to prevent serious consequences to society and to themselves if possible; and (3) to use every means known to science and at our command to diminish and finally prevent these conditions. Under the first head comes the necessity of providing the proper number of institutions with adequate facilities for the handling and treatment of these cases by skilled scientists, so that as soon as possible those that respond to proper treatment can again be made useful citizens, an asset to the commonwealth and not a liability. Those that are unresponsive to treatment should be made comfortable and as happy in their surroundings as is feasible.

Most cases of mental disorders can and would be readily recognized if our great school system would only take one step upward in the right direction. Employ

for every parish a trained psychologist who would subject every child upon entering school to thorough scientific tests, rate their mental age and those found deficient sent to a psychiatrist for examination. Again at the age of puberty, due to the change that takes place within the system at that time, symptoms manifest themselves which were before dormant and hence another thorough examination should be done.

It is the opinion of the writer that ninety-five per cent of the potential criminals and mental disorders would be discovered at an early date if the above methods were followed.

We must turn about face and do all in our power to better condition, we can no longer say, "I am not my brother's keeper."

ANGINA PECTORIS AND CORONARY THROMBOSIS.*

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Angina pectoris, that dread disease, of which so many physicians speak with abated breath, has been known clinically for centuries, whereas coronary thrombosis and cardiac infarction have been recognized clinically only in the past two decades. That these latter conditions were recognized years ago at post mortem, is conclusively shown by the fact that, in 1778, Edward Jenner in writing to William Heberden, mentioned that he had found coronary sclerosis and thrombosis at post mortem examinations of the hearts of two patients who had suffered with angina pectoris. In reviewing the literature we find that many authors, such as Von Leyden, Krehl, Dock, Osler and Mackenzie have described, under the heading of angina pectoris, a condition which today we know to be coronary thrombosis. However, Herrick[1] first described the clinical features of sudden obstruction of the coronary arteries in 1912.

*Read before the Shreveport Medical Society, September 6, 1927.

There have been numerous theories advanced as to the cause of angina pectoris. Jenner associated it with disease of the coronaries, later Allbutt[2] advanced the idea that it was due to disease of the thoracic aorta. There is more evidence in favor of coronary and myocardial disease, particularly, since we know that coronary occlusion will produce intense pain. However, all patients who have coronary disease do not have angina pectoris, as only two hundred eighty-two of the seven hundred clinical cases of coronary sclerosis reported by Willius,[3] had angina pectoris. Likewise, all cases of angina pectoris do not show coronary distase at post mortem examination. Repeated attacks of angina predispose to coronary thrombosis. An embolus lodging in a coronary artery will produce a cardiac infarct.

The symptoms resulting from coronary occlusion depend upon the size of the vessel occluded. In this paper we will deal with an average case; neglecting both the large thrombosis which causes sudden death and those cases in which the coronaries are gradually occluded, as by syphilitic endarteritis, where the symptoms are mainly of myocardial failure.

Pain is a common and pronounced symptom in angina pectoris and cardiac infarction; rarely do we see a case of either in which it is negligible. In angina pectoris the pain is brought on by excessive exercise, excitement, or the digestion of a heavy meal; it is of short duration and intermittent and relieved immediately by nitrites and rest. In cardiac infarction the pain may come on at any time; it has been aptly described by Jones[4] as "constricting, pressing, boring, burning, sharp, dull, or cramp like, and it may or may not radiate to the back, neck, shoulders, or down one or both arms. Not uncommonly it has been described as status anginosus or status gastralgicus when epigastric in location, as is common. There is a sense of impending death, something entirely different from anything the patient has

ever experienced, though he may even have had angina pectoris. Rarely is the pain intermittent, but constant, lasting for hours, even days, unrelieved by nitrites or rest, and often even by massive doses of morphia."

The examination of a patient who suffers with angina pectoris frequently reveals nothing, even though the patient may be having an attack while the examination is being conducted. Thirty-eight, or 26 per cent of Whites[5] one hundred forty-eight cases of angina pectoris examined by the electrocardiograph, showed normal hearts by physical and electrocardiographic examinations and normal blood pressure. Other cases of angina pectoris show hypertension, arterio-sclerosis, syphilis, cardiac enlargement, valvular lesions and abnormal T waves in the electrocardiogram. In coronary thrombosis or cardiac infarction the picture is entirely different. The facial expression is pinched, the patient is shocked, the skin is cold and clammy. The blood pressure drops below 100 mm. systolic. The cardiac impulse is diffuse, the heart sounds are weak and very irregular, any form of arrythmia may appear. According to Pardee[6] there is a characteristic upward curve of the S-T interval in the electrocardiogram. As the heart fails any degree of congestive failure, as dyspnoea, pulmonary edema, congestion of liver and general edema may appear. A few hours after the accident the temperature may go to 102 degrees with a leukocytosis of 12,000 to 14,000; these are the result of the infarction. Also a pericardial friction rub may or may not be heard, its presence aids in the diagnosis, but its absence does not mean that there is no cardiac infarct. Longcope[7] heard none in his sixteen cases.

The diagnosis of a typical case of angina pectoris is comparatively easy, but there are certain border line cases which cause considerable difficulty in diagnosing. These are the cases which we are tempted to classify as "cardiac neuroses." If this is done without considerable study, we are apt to hear later that the patient died a sudden or cardiac death. Coronary thrombosis frequently presents the symptoms of cholelithiasis or perforated gastric ulcer. In differentiating these the physician's diagnostic acumen is put to a severe test. Time will not permit of a thorough discussion at this point, but we will suffice it by stressing the importance of a correct diagnosis as the treatment is necessarily different.

The prognosis in angina pectoris is indeed a problem, not necessarily as grave as some think, but each case should be studied carefully, as regards the age of onset, sex, habits, occupation, temperament, and severity of attacks, before an opinion is rendered. Sudden death may occur at any time, and is frequently attributed to "acute indigestion." The highly nervous individuals who are under high pressure constantly, when removed from the daily strain and taught to lead a normal life, usually offer a good prognosis, especially so when there are no abnormal conditions found by physical or electrocardiographic examinations. In White's[8] series of two hundred cases, one hundred thirty-four were living and sixty-six dead at the time of the report, the average duration of life from the onset of the angina pectoris was 4.2 years. In coronary thrombosis the prognosis depends upon the size of the infarct. If this is not too large and the patient has the necessary treatment with a prolonged rest, recovery may be complete and the patient may lead a very active and useful life. Of White's[9] sixty-two cases, thirty-two died, the average duration of life being fifteen and one-half months.

Briefly the treatment of angina pectoris consists of rest and nitrites. It is very important to place the patients under the proper living conditions; they should avoid excessive exercise, excitement, extreme weather, and dietary indiscretions. Also any organic disease should receive the proper attention. In the last few years much has been said for and against sympathectomy; this procedure undoubtedly

has given relief in selected cases but it does not give an assurance against a future coronary thrombosis. Therefore, before advising this procedure the case should be carefully analyzed. In coronary thrombosis and cardiac infarction the treatment consists of prolonged rest, even by morphia in the early stages. There are authors who advise digitalis medication in all cases and others who are as strongly opposed. Therefore it is not likely that one will go wrong which ever procedure is followed.

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EARLY NEUROLOGY IN UNITED STATES.

C. L. Dana believes and hopes in a dominance in personal and community life of the functional activity of the master-tissue of the body—a dominance which he thinks with all conviction and sincerity is the dominance of the human soul. There are good reasons for believing that nervous diseases are increasing in the United States; and whether so or not there are special reasons for trying to prevent and lessen these disorders as they exist. It is well established by Dr. Pollock and others that mental diseases in the United States are increasing, except perhaps in Massachusetts. The relative increase in urban population and the general ambition of Americans to seek brain work rather than muscle work are natural factors in causing an increase of nervous disease. We are told that one American out of every twenty-five is in an institution for treatment at some period of his life, and that one out of 300 is in a hospital for mental diseases. The implication from these facts as to the prevalence of nervous disease is rather compelling. But whatever the implication or the fact it seems that preventive neurology is a phase of work that is of high importance and one that has been greatly neglected.—J. A. M. A., May 5, 1928.

THE ETIOLOGY OF ESSENTIAL HYPERTENSION.*

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Between 1900 and 1923 the mortality from organic heart disease in the United States increased from 132.1 to 175.3 per 100,000. This represents a total increase of approximately 33 per cent. No doubt one important explanation for this is the fact that during this period the average longevity has been greatly increased with the result that a much larger group now reach that age when organic heart disease is most common.

Chief among the immediate causes of organic heart disease is hypertension. More than fifty per cent of patients suffering from hypertension die of cardiac insufficiency. Majors[1] estimates that there are not less than five million people in this country suffering from high blood pressure. Certainly, then, this is one of the most serious problems facing our profession today.

During the last twenty-five years considerable progress has been made in the study of high blood pressure. Perhaps one of the most important single advances in clarifying this subject was the development of the kidney function tests which assist greatly in differentiating between renal and arterial hypertension. In a brief discussion of this kind it will not be possible to review or even to mention all the valuable contributions which have been made on the subject. Suffice it to say, that, with all the work that has been done, as yet, no altogether satisfactory explanation of the causation of hypertension has been offered.

Clinically increased blood pressure is met with in a variety of conditions. In this paper we will discuss only idiopathic arterial hypertension, commonly known as essential or benign hypertension.

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*Read before the Mississippi State Medical Association, Jackson, May 10-12, 1927.

Since a large majority of cases examined clinically as well as at the autopsy table have a readily demonstrable arteriosclerosis either local or general there has been much debate as to the relation of arteriosclerosis to hypertension. Wherever a large group of apparently healthy young individuals have been examined a considerable number have been found to have an increased blood pressure without any clinical evidence of arteriosclerosis. This tends to support the generally accepted view that essential hypertension is primarily a disturbance of function. Adherents to the theory that arteriosclerosis precedes hypertension have not yet offered a satisfactory explanation for the increased pressure when the process is localized as in the kidney.

In the light of the evidence that has been adduced the immediate cause of the increased blood pressure is a contraction of the arterioles. Although an enormous amount of work has been done, both clinical and experimental, the direct cause of such contraction has not been found. In other words, just how blood pressure is regulated, whether centrally or peripherally, chemically or reflexly, is still undetermined. The result of the investigations which have been carried out would indicate that there are several factors involved no one of which is necessarily present in all cases.

Newburgh and Clarkson[2] in a recent review of the literature on essential hypertension, group the possible causes under one of three headings: chemical, neurogenical and anatomical.

Until comparatively recently the majority of observers have regarded hypertension as evidence of an intoxication by some substance having a vasoconstricting action and have assumed that an excretion, destruction or neutralization of this substance would bring about a cure, provided secondary anatomic changes were not too advanced. Allen,[3] for instance, believes that chlorides play an important role in the etiology of hypertension and urges their rigid restriction. He does not attempt to explain how chlorides increase blood pressure but apparently bases his conclusions on clinical experience. On the other hand, the majority who have tried the low chloride diet agree with O'Hare and Walker[4] that salt plays little part in the cause of vascular hypertension.

The protein intoxication theory was for years the dominant one in both American and French literature. But when this theory was finally subjected to accurate clinical and experimental tests it was found that there was no constant relation between the blood pressure level and the protein intake except in the presence of renal insufficiency. Thus the traditional plan of restricting protein in arterial hypertension was proven to be useless. However, it should be stated that whereever experiments have been carried out with diets containing an excessive amount of protein definite evidence of renal irritation was produced as shown by the presence of albumen and casts in the urine and an elevation of non-protein and urea nitrogen in the blood.[6] Arteriosclerosis has also been produced in animals by feeding a high protein diet.

An explanation for the variable results obtained from protein restriction is offered by Sansum, Blatherwick and Smith[5] in their work on basic diets. These observers noted that diets rich in animal proteins such as chicken, fish, oysters and lean meats as well as certain carbohydrates, as wheat bread, rice and oatmeal, greatly increase the hydrogen ion concentration in the urine; while, on the other hand, the majority of vegetables and fruits are strongly alkali producing. They also noted a striking reduction in blood pressure in those patients who were kept on such basic diets.

Hypertension has been attributed to the retention of certain products of metabolism. Major and Stephenson,[6] and Howard and Rabinowitch[7] have reported experiments with guanidine compounds which produced a definite but inconstant eleva-

tion of blood pressure. Major then prepared a liver extract which will neutralize the pressor effect of methyl guanidine. The lowering of blood pressure obtained by Addison and Clark[8] from the administration of calcium and potassium chloride may be due to the increased excretion of guanidine.

Because the injection of extracts from certain of the ductless glands, notably the adrenals,, pituitary and thyroid, will cause an increase in blood pressure, essential hypertension has been attributed to a hyperfunction of one or more of these glands. There is as yet no reliable evidence that such is the case. The frequent occurrence of hypertension around the menopause has been referred to as indicating an endocrine disturbance.

In many cases an over-responsive vasomotor nervous system is more important than these metabolic disturbances. Just as in effort syndrome we have a faulty constitutional make-up, so in many of these hypertensive patients we have an unstable vasoconstrictor mechanism which responds excessively to mild physical or psychical stimulation. The rest pressure in many of these is usually above normal. Most of them seem to live in a state of constant stress. Hurry and worry are almost universal characteristics. Some one has said that their higher centers are too intimate with their vasomotor centers.

Kylin[9] interprets essential hypertension as primarily a neurosis and refers to its liability as a characteristic favoring a neurogenic basis. He compares it to bronchial asthma. Here the spasm of the bronchi is superinduced by a hyper-irritable vegetative nervous system. Likewise in essential hypertension the vasoconstrictor mechanism is supersensitive and the blood pressure is elevated by stimuli which would not effect normal individuals.

Referring again to the relation of arteriosclerosis to increased blood pressure, it is interesting to note the observations of Bordley and Baker[10]. These authors studied the medulla of a small series of cases who were known to have hypertension and as controls a series whose blood pressure was known to be normal. In the hypertension group they were able to demonstrate a definite arteriosclerosis in all cases while in the controls they found no arterial change. They suggest that their findings tend to support the physiological law established by Anrep and Starling[11], namely, that a reduction of the amount of blood reaching the brain (presumably the vasomotor center) causes a compensatory rise in the systemic pressure. While this is an interesting finding a great deal more work will be necessary before any final conclusions can be drawn.

Although the immediate cause of the contraction of the arterioles, and therefore of hypertension, has not been determined, there are several important predisposing factors about which all are agreed:

Age: While the majority of cases of essential hypertension are encountered after mid-life, evidence is increasing which indicates that the disease has its inception at a much earlier period. At present relatively few cases are discovered until the patient develops some symptom referable directly or indirectly to his increased blood pressure. Therefore, it is only by an examination of a large number of apparently healthy individuals that we will be able to determine the average age incidence. Among 485 cases of essential hypertension examined in our clinic the average age was 54.5 years.

Sex: Men are said to be more often affected than women for the reason that they are subjected to more physical and mental strain. In our series, however, 61 per cent were women and 39 per cent men. We have already referred to the frequency of hypertension in women around the menopause. Alvarez[12] has called attention to the association of increased blood pressure and pelvic pathology.

Occupation: Hypertension was formerly believed to be a disease peculiar to business and professional men, or among those who were subjected to an excess of nervous and mental strain. Our experience based upon both private and hospital practice leads us to believe that it is equally as common among those who do manual labor.

Race: There are no available statistics showing the comparative incidence of hypertension in the white and negro races. Based on fifteen years' experience in a large general hospital (Memphis General Hospital), we believe that the condition is quite as common among negroes as whites.

Habits: The use of alcohol, tobacco, tea and coffee are usually mentioned as etiological factors. We know of no definite clinical or experimental evidence to support this view. Nevertheless, hypertensive patients are usually given to excesses of various kinds, and any of these stimulants used excessively will probably increase a pressure that is already above normal. Overwork and overeating play more important roles than either alcohol or tobacco.

Heredity: The influence of heredity, we believe, has not been sufficiently emphasized. O'Hare and his associates[13] in a study of 300 cases of hypertension found a definite family history of cardiovascular disease in 68 per cent and urged the importance of safe guarding the children of these hypertensive patients against an excess of nervous and physical strain. Janeway[14] spoke of hypertensive cardiovascular disease as "the type in which heredity plays the largest role." It is safe to say that heredity is as important in hypertension as in cancer.

Obesity: Closely related to heredity is obesity, the danger of which cannot be stressed too much. Not only is it well established that hypertension is more common among those who are overweight but they are much more prone to develop prematurely such complications as apoplexy and myocardial insufficiency. Furthermore, it has been shown that obesity is often associated with hyperglycemia which in turn tends to increase blood pressure.

Focal Infection: As in most diseases of obscure origin focal infection has been credited with an important role. In the evaluation of the various etiological factors are we not inclined to give too much emphasis to focal infection? Certainly we see a large number of hypertensive patients in whom no chronic infection can be demonstrated. In our series of 485 cases we were able to demonstrate focal infection in only 158 or 32.5 per cent. Nevertheless, we would not be understood as discounting the importance of chronic infection; on the contrary the management of every case should include the removal of all definite foci. But in cleaning up these infections we should not expect and certainly we should not promise any great reduction in blood pressure. Furthermore, in eradicating these foci extreme caution must be exercised not to stir up too much infection at one time.

Finally in searching for the cause of hypertension we would urge a careful and comprehensive study of the individual. Although all clinicians are familiar with the increase in blood pressure caused by such emotional disturbances as fear, grief, worry and anger, very little clinical research has been done to try to determine the exact part these psychic factors play.

CONCLUSIONS

1. The immediate cause of increased blood presure in essential hypertension is a functional contraction of the arterioles.

2. There are probably several factors involved in this contraction no one of which can be said to predominate in all cases.

3. There is need for further research, both clinical and laboratory, into the various condtions, psychical as well as physical, influencing the vasomotor system.

4. Until the condition is better understood the successful management of the disease depends largely on an early recognition. This can be done only through periodic examinations of apparently healthy individuals. Since cardiovascular disease is the leading cause of death among physicians is it not time we were beginning to practice as well as preach the gospel of periodic health examination?

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PROGNOSIS IN KIDNEY DISEASE.*

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At this time when we hear so much and every physician and surgeon has to be interested in the diseases of so-called "high-pressure living," much attention is being given to nephritis. Nephritis, in one form or another, is a very common disease. In fact, it is almost the rule to find some indication of kidney derangement in persons over fifty years of age, if we base our judgment on urinary findings. However, since the advent of blood chemical procedures into rather general use, our ideas as to the diagnosis of nephritis have had to undergo considerable re-checking. Formerly the severity of a given case was judged in large part by the amount of albumin and the number and kinds of casts and cells found in the urine. By blood chemical tests, we have found that, as a matter of fact, the severity of a case of nephritis depends on the amount of retention of waste products in the body and blood—in other words, on how much of its normal work of excretion the kidney is failing to do. By these methods we have found that much albumin and many casts and so-called "renal cells" may be found in the urine from kidneys that are actually working in a nearly normal manner; and, vice versa, the slightest possible traces of albumin and rare or no casts from kidneys that are ready to give up "for keeps."

The substances normally excreted by the kidneys, which are of perhaps the most significance when retained, are uric acid, urea nitrogen, and creatinine. In beginning kidney disease it has generally been supposed that uric acid was the first of these products to be retained; urea nitrogen coming next as the lesion progressed; and creatinine, the easiest to excrete, being the last to show retention, and, therefore, of most serious import. We are having to

*Read before the Issaquena-Sharkey-Warren County Medical Society, July 12, 1927.

admit some doubt as to the significance of the uric acid, for while it seems to be the first retained, it does not seem to keep its precedence when the lesion becomes serious enough for urea nitrogen retention. It would be natural to suppose that as urea appeared and increased, the uric acid would keep pace, but this does not always seem to be the case. However, as regards urea nitrogen and creatinine, their retention is of real diagnostic and prognostic value, and as an indicator of a fatal outcome, the retention of creatinine is of especial value. In fact, while with marked retention of uric acid and urea nitrogen, the patient may recover and the kidneys again become apparently normal, with retention of creatinine above five milligrams per 100 cc. of blood, recovery is the rare exception, and with such findings, the physician is justified in predicting a fatal termination.

In a series of 85 cases with creatinine retention of over five milligrams followed by Myers formerly of the New York Post Graduate Medical School and Hospital, only two recovered. The others all died in from two days to three years, 61 or 72 per cent dying within two months.

There has been much discussion and research on the origin of creatinine. It is probable that it is formed in the muscle tissue, is then poured into the blood stream, and by it carried to the kidneys for excretion. It is apparently of strictly endogenous origin and on a meat-free diet is quite independent of the food intake. In this respect it is a better indicator of kidney sufficiency than either uric acid or urea nitrogen. The normal findings for 100 cc. of blood are: Uric acid, 1 to 3 mg.; urea nitrogen, 12 to 15 mg.; and creatinine, 1 to 2.5 mg.

In our work we have found creatinine over five milligrams per 100 cc. of blood seven times in the last three years. A few points from these cases will illustrate the significance of creatinine retention.

Case 1. Colored female, Age 32 years, referred for laboratory diagnosis. *Urine* (two specimens on successive days)—Slightly pale to normal color; cloudy; alkaline; specific gravity, 1.005 and 1.006; albumin, 3 per cent and 4 per cent (by volume); slight sediment with triple phosphate crystals and amorphous phosphates; many pus cells; many fresh red blood cells; no casts found. *Blood*—Not remarkable except polymorphonuclear neutrophil percentage was 78; no malaria; Wassermann test negative. *Blood Chemistry*—Uric Acid, 16.6 mg.; urea nitrogen, 33.6 mg.; creatinine, 24 mg. Patient died in 15 days.

While there was considerable albumin in the urine, no casts were found in two examinations and the albumin could well have been due to the many pus cells and much blood of a cystitis or pyelitis.

Case 2. Colored male, age 49 years. Began to have shortness of breath and headache one year ago. Two weeks ago, feet began to swell. Teeth extracted one week ago and in bed since. Appetite good, but unable to eat on account of sore gums. Bowel movements regular and no urinary history of importance.

Urine—Pale; slightly acid; specific gravity, 1.004; large trace of albumin; sediment slight with rare brown granular cast, some pus cells, no blocd. Five days later albumin was 1 per cent. (by volume); no casts found. Wassermann test was negative. *Blood Chemistry*—Uric acid 12.5 mg.; Urea nitrogen, 238 mg.; Creatinine, 9 mg. Died in four weeks.

There was nothing in the urinalysis in this case to indicate a rapidly fatal outcome.

Case 3. Colored male, age 45 years. Three weeks ago began to have loose bowel movements that his physician said were due to "flu." Passed blood and mucus and had fever. Apparently recovered. Then was exposed to cold and wet and feet and face began to swell; had severe pain in stomach, was nauseated, and bowels again became loose. Has had headache and pain in left side. Physical examination showed abdomen distended and containing fluid; tenderness in left costovertebral angle. *Urine*—Pale; cloudy; alkaline; specific gravity, 1.008; albumin, 15 per cent. (by volume); sediment slight with some triple phosphate crystals; numerous leukocytes; many fresh red blood cells; many motile bacilli. *Blood* showed polymorphonuclear neutrophils 80 per cent, otherwise, not remarkable. No malaria found. Wassermann test positive with three antigens. *Blood Chemistry*—Uric acid, 12.5 mg.; Urea nitrogen, 197.4 mg.; Creatinine, 24 mg. Died in four weeks.

While impending uremia was rather evident in this case, no casts were found in the urine, and it is not rare for patients with similar findings but without similar blood chemistry to recover.

Case 4. Colored male, age 34 years. Complained of general aching, weakness, and fever. *Urine*—Normal color; cloudy; acid; specific gravity, 1.015; albumin, 4 per cent. (by volume); sediment 0.5 per cent., with few finely and coarsely granular casts, many pus cells, few motile bacilli. Four days later, albumin had dropped to 2 per cent with rarely hyaline cast and less pus. In 18 days after the first examination, albumin was a large trace, with rare hyaline cast, few leukocytes, and rare abnormal red blood globule. *Blood*—Not remarkable; no malaria; Wassermann test negative. *Blood Chemistry* (16 days after patient came under observation)—Uric acid, 11.1 mg.; urea nitrogen, 22.75 mg.; creatinine, 5 mg. Patient died 25 days after coming under observation; nine days after increased creatinine was found.

In this case the high creatinine was found when the urinary findings had much improved and the blood chemical examinations were the only indications of a fatal termination.

Case 5. White male, age 41 years. History of having had albumin in the urine for 15 years, frequently with no casts. When seen first in present illness was up and dressed and compained only of feeling weak and tired. Respiration was 28. *Urine*—Pale; cloudy; slightly acid; specific gravity, 1.006; albumin, 2 per cent (by volume); sediment slight, with numerous abnormal red blood globules; no casts. *Blood*—Polymorphonuclear neutrophils, 88 per cent; otherwise, not remarkable; no malaria. Wassermann reaction was doubtful (+). *Blood Chemistry*—Uric acid, 5 mg.; urea nitrogen, 32.9; creatinine, 6.4 mg. Died on third day.

This is another case in which the blood chemical findings were the only indicator of early death.

Case 6. Colored male, age 69 years. Complained of inability to pass urine. Had been getting up six to eight times to pass urine each night. Lately unable to pass urine except in small dribbles after much straining. For past 24 hours had been having headache, and muscular twitching. Temperature 101° F.; pulse, 120; respiration, 20; blood pressure, 160/90. Tumor in suprapubic region, probably distended bladder; prostate enlarged and hard. Catheter drained 1500 cc. of dark, foul-smelling urine, with some blood. *Blood*—Leukocytes, 15,200; polymorphonuclear neutrophils, 86 per cent. No malaria was found. Wassermann test, negative. *Blood Chemistry*—Uric acid, 10 mg.; urea nitrogen, 46.9 mg.; creatinine, 12 mg. Died one week after first seen.

The blood chemistry in this case indicated the severe nitrogenous retention and the bad prognosis. Old prostate cases are likely to give the other findings, and without creatinine retention, often recover under appropriate treatment.

Case 7. White female, age 54 years. Complained of headache and slight loss of vision. Blood pressure, 205/100; pulse, 80. *Urine*—Normal color; cloudy; slightly acid; specific gravity, 1.005; albumin 4 per cent (by volume); sediment slight, with some pus cells and many motile bacilli; no casts. Three days later, catheter specimen showed urine: Pale; slightly cloudy; slightly acid; specific gravity, 1.009; albumin, 2 per cent; slight sediment with a few fresh red blood cells; no casts. *Blood*—Not remarkable; no malaria; Wassermann test, negative. *Blood Chemistry*—Urea nitrogen, 56 mg.; creatinine, 6.9 mg. This patient is still under observation, having been first seen on June 29th of this year, and is apparently improving. The prognosis, based on the creatinine retention, is bad.

SUMMARY

1. Blood chemical tests give a far more accurate indication of kidney insufficiency than do urinary examinations.

2. Of the waste products retained in kidney disease, uric acid, urea nitrogen and creatinine are the substances of most general diagnostic and prognostic significance.

3. Of these substances, the retention of creatinine in amounts above five milligrams per 100 cc. of blood, is the surest indicator we have of a fatal outcome.

4. The records of six cases of creatinine retention with fatal termination and one case with creatinine retention and still under observation are presented.

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MIRROR TRANSPOSITION OF THE VISCERA ASSOCIATED WITH ACUTE APPENDICTIIS.

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Situs inversus viscerum totalis, complete heterotaxy or complete transposition of the viscera is no longer of interest as the rare anatomical or pathological curiosity. It is now of utmost importance to the clinician for the correct interpretation of physical signs, and for the guidance of the abdominal or thoracic surgeon.

The first records of the condition were written by Aristotle, who described two cases of situs inversus in the dog. The next records we find in the sixteenth century where Riselanus, Serius and Marie de Medici, Queen of France, described the condition in human beings. Only in the last century was the first case reported in the living. But with the increased interest in the condition that has arisen in the last several years there has been an ever-increasing percentage of these cases reported in the literature. In 1912 Karashima found that 200 had been reported and at the end of 1926 Herrmann found that 315 cases had apeared in the literature, to which number he has added four more cases.

Frequency: From the extremely wide variations of the different observations the frequency of the condition can hardly be approximated. One observer, according to LeWald, estimated the frequency of complete transposition as being one in 3,000 cases. Ten cases were indexed at the Mayo Clinic since 1910 in a series approximating 347,000 cases. LeWald reports one case observed in 35,000 routine army examinations, 5 cases in 5,000 autopsies, and 28 cases of situs inversus totalis recognized in 40,000 roentgenographic examinations. From the dissecting rooms of the College of Physicians and Surgeons of Columbia University Cleveland reports the first and only instance of situs inversus observed. In our own experience, since 1915 in appromixately 5,000 cases which came to laparotomy only one case has been observed.

Causation: Much experimental work has been done and many theories advanced, but as yet no definite conclusions can be drawn. The various theories are taken thoroughly into consideration by LeWald[1] and Herrmann[2]. Suffice us to say here that there is a growth disturbance at some critical time in the developmental period which interferes with normal rotation. As Hirschfelder ascribes it, it is very likely to the changed position of the primary cardiac tube in early embryonal life with the resulting reversed direction of the blood current from alteration of the usual relationship of embryo to primitive chorion, so that the right side is placed nearest its blood supply instead of the left side.

Diagnosis: Killinger classifies the possibly existing conditions as follows:

(1) In which all the organs are transposed.

(2) The heart alone is transposed, dextrocardia.

(3) In which all the organs are transposed except the heart; and

(4) In which there is complete or incomplete transposition of the viscera with or without cardiac involvement, associated with various congenital lesions of the heart and great vessels.

In recent years careful physical examinations, radiography and electrocardiography have revealed in life what was formerly found only at necropsy. The attention is usually first attracted to the condition by the presence of dextrocardia. Congenital transposition of the heart alone is

1. J. A. M. A., 84:261, 1925.
2. Warthin Memorial Volume, 1927.

rare, and although lesions of the respiratory tract may mechanically influence the position of the heart, total transposition of the viscera should be considered. One of the most frequent causes for overlooking the condition is the fixing of the examiner's attention too directly on some major abdominal symptom. When situs inversus is suspected the abdominal examination should be directed toward outlining the position of the liver and spleen, and a roentgenographic examination with the barium meal made of the stomach and intestines. The left sided liver may be taken for splenic enlargement and in a woman an acutely inflamed, transposed appendix may simulate tubo-ovarian disease, twisted pedicle cyst of the ovary, or even left tubal gestation.

Discussion: Transposition does not, as was previously supposed, include only the abdominal viscera, but every structure in the body in a mirror-like reversal. The condition is found most frequently in males, but when present in females has no effect on parturition, some of the women in whom it has been observed being unusually fruitful. The patient usually knows nothing of the peculiar structure of his body until examined by his physician for some ail common to his fellow-mortals, when he is found to be an individual of ordinary intelligence, right-handed, imbued with talents common to his brothers, and suffering no handicap from the transposition. They usually enjoy life over their normal span of years and many live to an old age. Out of 79 cases collected by Gruber, 19 were females, and of that number 5 lived to an age between 70 and 84.

We feel that our case is of interest because the patient entered the hospital with symptoms leading to a clear- cut diagnosis of right-sided appendicitis, but at laparotomy was found to have an acute appendicitis of the left side with but a partial rotation of the colon. The importance of routine physical examinations before abdominal and thoracic operations cannot be too strongly stressed, and should transposition be suspected and time permit, roentgenographic studies of the gastro-intestinal tract should be made in order that the surgeon might enter the abdomen through the most favorable incision for that particular case.

Although the operator may be very easily misled by right-sided symptoms and physical signs of an acute lesion of a left-sided appendix, it must also be borne in mind the possibility of non-rotation of the colon, which if associated with transposition of the abdominal viscera, will still give us a right-sided appendix. LeWald in his own experience has seen two such cases and mentions the fact that in such an individual with a high stomach there is apt to be, in a radiographic examination, an absence of the usual cap-like formation about the first part of the duodenum leading to the supposition of a duodenal ulcer or periduodenal adhesions. And in a patient with a low stomach of the fish hook variety the cap-like formation may be present. Other disturbances of the normal rotation of the colon are: (a) partial rotation in which the cecum may be high or in the median line, and (b) cecum mobile, or excessive descent and lack of fixation of the cecum, in which case the removal of an appendix for the symptoms of chronic appendicitis will be of no avail without the fixation of the cecum.

A case similar to ours was reported by Summers in 1923.

Summer's Case: Woman aged 21 years, the mother of one child 18 months old, complained of pain over the lower right quadrant of the abdomen, which began in attacks six years previously. Several attacks gave generalized pain over the abdomen with nausea and vomiting. Pressure over McBurney's brought a characteristic right rectus reflex and drawing up of the right thigh.

Diagnosis: Subacute recurrent appendicitis.

Operation: Disclosed transposition of the sigmoid flexure of the colon with appendix and cecum on the left side of the abdomen; the pelvic organs normal; transposition of the liver, and the direction of the stomach was from right to left. The

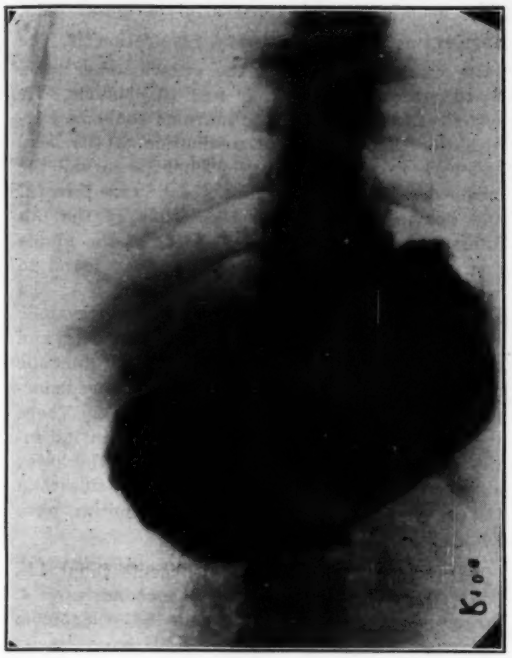

Fig. 1. Case 4, showing the stomach immediately upon being filled with barum. Mirror-like reversal.

spleen was transposed. Appendix removed. Pathological report confirmed the diagnosis. The heart was on the right side.

REPORT OF AUTHORS' CASE

P. C. D., colored male, aged 18 years, referred by Dr. W. E. Allen, of Ward, Ala., entered Rush's Infirmary with a diagnosis of acute appendicitis.

His present illness began 24 hours previously with generalized abdominal pain, nausea and vomiting. The pain was cramp-like and in a few hours radiated to the right lower quadrant and there persisted. Vomiting ceased, but the nausea persisted. The temperature was normal at the onset of the attack, but had risen to 101° F. at the time of his admittance into the hospital. He had suffered previous attacks of lower, right abdominal pain sometimes associated with nausea and vomiting, and at times complained of indigestion following the taking of food. This burning sensation in the epigastrium was relieved by the taking of "Black Draught." He has suffered some from constipation, and aside from a marked susceptibility to colds and frequent headaches there was nothing else of interest in his story.

He is one of 17 children, only 5 of which are living. The mother gave birth to two sets of twins, both of which were born dead; and suffered two miscarriages several years previously, each occurring at about the sixth month.

The physical examination revealed a well-developed and well-nourished individual, lying upon his back with the right leg drawn up. The pulse was fast, regular and of good volume. Respiration was 24 per minute. The lungs were negative and the heart showed only the abnormality of location, occupying its normal position except that the outline of the dullness was to the right instead of the left of the sternum. The area of liver dullness was normal but located on the left side. The abdomen was markedly rigid. The liver and spleen could not be palpated, but the area of gastric tympany was largely on the left side. Pressure over McBurney's gave rise to marked pain and the characteristic flexion of the right thigh upon the abdomen. The right testicle was lower than the left.

The boy was conscious of the fact that his heart beat was on the right side. He was ambidextrous and has suffered no handicap from the transposition. No other members of his family were found to be transposed.

Laboratory report:

Total leukocyte count 12,500.

Differential: Neutrophils 88 per cent, large lymphocytes 4, small lymphocytes 7, eosinophils 1.

Urinalysis negative.

Wassermann negative.

Operation: The colon was found to be partly non-rotated with a high cecum on the left side. The liver and gall bladder were on the left side, with the appendix retrocecal, acutely inflamed and wrapped in adhesions. The spleen was on the right side, the direction of the stomach was from right to left, and the right kidney was found to be higher than the left. Appendix removed and the wound (right rectus incision) was closed in layers without drain.

Roentgenographic report by Dr. J. E. McDill, made six weeks after the operation, was as follows:

Fluoroscopic Examination: The heart and aorta are normal in size. The aortic arch is to the right of the sternum. The apex of the heart is also on the right, being in the fifth interspace 8 cms, to the right of the midsternal line.

The barium meal enters the stomach on the right under the apex of the heart where the normal gas bubble is seen. The stomach is large, steer-horn shaped and lies obliquely across the abdomen from right to left. It contains some food which gives it irregular mottling.

X-ray plates confirm the above.

Conclusions: Transposition of the heart and stomach. The patient refuses to stay for further study.

Fig. 2. ,Case 2. The colon has been filled by barium clysma. Both the ascending and descending portions are on the left side.

A second case of situs inversus has come under our observation; this, however, involved only the abdominal viscera. In this case the condition was not suspected until the abdomen was opened.

Case No. 2: I. H., male, aged 22 years, referred by Dr. Dryden Walker, entered the Infirmary with a diagnosis of acute appendicitis.

Seven hours previously he had been taken suddenly ill with severe cramp-like pain in the epigastrium. The pain soon became continuous and persisted for about three hours when he was taken with nausea and vomiting, the pain then radiating to the lower abdomen where it persisted in the right and left iliac regions, being so severe as to cause him to bend forward. The temperature three hours after the onset of the attack was 100° F., rising to 101° F. at the time of admittance to the hospital. Five weeks ago he suffered pain in the right iliac region which persisted for several hours. He did not know if there was fever, but nausea and vomiting were not present.

Physical examination revealed a well-developed, well-nourished individual, lying in bed upon the left side with both thighs flexed upon the abdomen, acutely ill and apparently in great pain. Temperature 100° F., pulse 92, respiration 22. The pulse was regular and of the waterhammer type. Blood pressure 110 systolic and 10 diastolic. A systolic shock and diastolic murmur could be elicited over the femorals. Examination of the head and neck revealed nothing of importance and the lungs were clear. The apex beat was forceful and heaving, being distinctly visible in the 6th interspace 3 centimeters to the left of the nipple line. The area of cardiac dullness was found to be enlarged downward and to the left. At the apex and at the ensiform cartilage loud systolic and faint diastolic, and over the pulmonic and aortic regions faint systolic and loud diastolic murmurs were heard. These murmurs were transmitted to the left axilla and to the back. There was marked rigidity over the abdomen in its entirety, with severe pain on pressure over the lower abdomen, being no more marked on one side than the other. The genitalia and extremities were negative.

Laboratory Reports Total leukocyte count 14-, 300. Differential count: small mononuclears 4, large mononuclears 4, neutrophils 88, eosinophils 3, transitionals 1. Urinalysis negative.

Diagnosis: Acute appendicitis. Aortic regurgitation.

Operation: McBurney incision. Peritoneal cavity found to contain yellowish-red tinged fluid. The peritoneum was inflamed with injected vessels and of a purplish-red color. No cecum nor ascending colon was present on the right side. Liver found to be transposed. Cecum, acutely inflamed appendix and the ascending colon present on left side of the abdomen. Appendix removed. No further exploration was made because of the condition of the patient. Tube put into place to remain for 48 hours. Wound closed in layers.

Post-operative examination revealed the area of liver dullness on the left side, and the greatest area of gastric tympany on the right. The left testicle was the lower. The patient was right-handed and had never been conscious of the transposition. There was no history of twinning in the family.

Roentgenographic Report (eleven days after operation): Chest; the bony framework is normal. The heart and aorta are increased in size, the shadow of the heart being mainly to the left of the midsternal line. The diaphragm is smooth and even, the right side being higher than the left. There is no evidence of pathology in the lungs.

The stomach fills through the esophagus from the right of the midline. The fundus and greater curvature are to the right of the midline. No evi-

dence of pathology is seen in the stomach or duodenal cap. Twenty-four-hour plate shows the colon to be entirely on the left side and the cecum and ascending colon to be smaller than normal. The transverse colon is about two inches long. The descending colon fills normally and a small amount of barium has passed into the sigmoid. A barium clysma given 48 hours later filled the sigmoid, descending and ascending colons, showing no evidence of pathology.

Conclusions: Transposition of the abdominal viscera, with cecum, ascending, transverse and descending colons on the left side.

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HIDEYO NOGUCHI.—The announcement of the death of Noguchi from yellow fever adds but another name to the long list of eminent medical scientists who have contributed, not only their knowledge but their very lives to the stamping out of disease. Yellow fever seems to be the grimest reaper of all the infectious disease. To the name of Lazear, as well as to the cryptonyms of a host of heroes of medicine who have fought the disease and died, unknown and unsung, is added that of Noguchi. It seems the irony of fate that the glory of the virtually accomplished conquest of yellow fever should be marred by the death of the one man who as an individual has done more than any other to make this victory an accomplished fact.

THE TREATMENT OF CERTAIN TYPES OF EPIDERMOPHYTOSIS BY MEANS OF A CARBOL-FUCHSIN PAINT.*

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NEW ORLEANS.

After a fairly large number of experiments I have introduced two fuchsin paints in the treatment of epidermophytosis.

Paint No. 1 has the following formula: Saturated alcoholic solution of basic-fuchsin, 10 c.c.; 5 per cent aqueous carbolic acid solution, 100 c.c. Filter and add boric acid 1 gram. After two hours add 5 c. c of acetone. The paint should be kept in a dark coloured bottle with glass stopper.

The paint is the ordinary carbol-fuchsin used in bacteriological laboratories for staining tubercle bacilli to which 1 per cent boric acid and 5 per cent acetone has been added. As a matter of fact simple carbol-fuchsin alone gives good results, but the addition of the boric acid and the acetone seems to enhance its action and make it more penetrating. It is applied to the affected parts with a small wad of cottonwool or a small sponge every day, in some cases several times a day, or every other day or twice a week; if eczematoid symptoms are present and are very acute it may be diluted with the same amount of water, but usually it may be safely applied undiluted even to most acute eczematoid conditions provided they are of true epidermophytic origin.

Paint No. 2 is paint No. 1 to which 10 per cent resorcinol has been added two hours after the addition of acetone. It is applied in the same manner as Tr. No. 1. It is the paint I now generally use as it appears to be more efficacious.

Types of Epidermophytosis Treated.—I have used the paint principally in the following conditions:

1. *Chronic cases of epidermophytosis interdigitalis pedum.*—The result is gener-

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*(From the Department of Tropical Medicine, Tulane University.)

ally satisfactory, especially in cases with secondary pyogenic infection. In the past when the associated pyogenic infection was very heavy and there was present diffuse redness with pustules and abrasions I used, at first, keeping the parts moist with a saturated boric lotion or a boric resorcin lotion, for two or three days before starting the fuchsin paint. Now, however, in practically every case, I use the fuchsin treatment immediately with good results.

2. *Cases of pruritus ani and pruritus vulvae of mycotic origin.*—As I have stated in other publications a fairly large number of cases of pruritus ani and pruritus vulvae are of mycotic origin; very often we are dealing with a latent epidermophytosis with superadded saccharomycetic, cryptococcus, monilial, and bacterial infections. In a number of these cases the paint acts well.

Illustrative Case.—Mrs. B. (London) complained for several weeks of unbearable vaginal and anal pruritus. On examination an eczematoid condition of the labia majora and of the perianal region was present; the patient complained of pruritus also in the labia minora and in the clitoris. The paint (Paint No. 1) was applied freely not only to the external surface of the labia majora but also to the internal surface, and also to the labia minora and clitoris; at first diluted with equal part of water, then neat as it caused no smarting. The application was done at first every other day, then twice a week, then once a week. Within three weeks the condition was completely cured.

From this case, before starting the treatment, an epidermophyton *(E. rubrum)* was grown and in addition a monilia and various bacteria, also a most peculiar organism which I was uncertain at first how to classify as certain forms of it resembled a cryptococcus, others a thick bacillus. I have described it elsewhere under the name *Bacillus multiformis**.

3. *Cases of epidermophytosis inguinalis and corporis not answering satisfactorily to the usual routine method of treatment by anti-mycotic salves.*—While most cases of tinea cruris answer well to the usual routine treatment by salicylic-benzoic acid ointment (Whitfield's ointment) consisting of salicylic acid gr. xxx, benzoic acid gr. xxx and vaseline 1 ounce, or my salicylic-sulphur ointment (Ac. salicyl gr xxx. Sulphur. praec. gr. xxx, Vaseline 1 ounce, in a certain percentage of cases the result is unsatisfactory; in some of these cases I have found the paint useful.

4. *Cases of epidermophytosis simulating moist eczema.*—In these cases the paint seems to be very successful, especially when the lesions are on the hands and feet.

Epidermophytic pompholyx—The deep tense vescicles should be opened with a sterlie needle or pin and then the paint applied frequently and freely all over the affected region, usually the fingers and palms of the hands. In this type of epidermophytosis the paint does not answer so well as in the eczematous type. In certain cases it is useful—provided there are no moist eczematoid lesions—to apply frequently for two days before starting the fuchsin treatment a lotion containing Menthol or Thymol grii-v, Ac. Salicylici gr. xxx-zi, Resorcin gr. xv-xxx, Spir. rect. zii-iv, Ac. Dest. adz. vi.

5. *Post-epidermophytosis pruritus.*—In previous publications I have called attention to the occurrence of the post-epidermophytosis pruritus, viz., cases in which after the usual routine treatment all the objective symptoms of epidermophytosis disappear but the pruritus remains for weeks and months. The pruritus may be of different

*Pro. Soc. Exper. Biol. and Med., (to be published). (See also Gehrman Lectures delivered before the Univ. of Illinois and published in the Archives of Dermatology, 1927-1928.)

origin; (a) although the clinical signs have disappeared the mycotic infection is still present; (b) overtreatment and mild hypersensitivity to the various antimycotic ointments, (c) nervous origin; in some highly strung individuals the pruritus remains long after the infection has disappeared.

In the first group of cases the use of the carbol-fuchsin paint will be found useful.

Conclusion.—A paint consisting of carbol fuchsin 100cc, acetone 50cc and boric acid grm 1 to which 10 per cent resorcinol is added is useful in the treatment of certain cases of epidermophytosis in which the ordinary routine treatment with the usual antimycotic ointments at times fails; especially cases of epidermophytic pruritus interdigitalis of epidermophytic pruritus ani, epidermophytosis with superadded piogenic infections.

A disadvantage of using the paint is the deep red colouring of the skin, but patients who have had epidermophytosis for years and have tried all sorts of treatment do not object to it. So far I have not come across —among over a hundred patients—a single case of hypersensitiveness to the paint, but no doubt if this method of treatment should become generalized such hypersensitive individuals will be found, and, therefore, in cases in which large areas of the skin are involved, it will be advisable at first to apply the paint to only a limited portion.

REVIEWS

PHYSIOLOGY OF THE RETICULO-ENDOTHELIAL SYSTEM.*

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In 1913, Aschoff grouped together a system of cells under the designation of the "reticulo-endothelial metabolic apparatus," sometimes called the "macrophage system," the study of which has extended into almost every field of medical inquiry. The name "reticulo-endothelial system" is a convenient one to employ when describing the activities of a system of cells widely scattered throughout the body but having a more highly specialized function in some situations. Some such term is necessary to describe what is really, in a way, an organ of the body, although distributed almost as widely as the lymphoid tissues.

From reactions of various cells to vital dyes it is apparent that some react more vigorously than others. It is these more vigorously reacting cells which are grouped together as the "reticulo-endothelial system." Aschoff distinguishes two groups in this system, one stationary and one free. The stationary group includes the reticulum cells of the splenic pulp, lymphatic tissues and bone marrow, and the endothelial cells of the capillaries of the liver, bone marrow, adrenal cortex and hypophysis and of the sinuses of the lymph nodes and spleen. The wandering elements include the tissue and blood histiocytes, and the splenocytes. Especially important parts of the system are the so-called endothelial cells which form the incomplete lining of the sinusoids of the liver and spleen. In the liver the cells are known as the Kupffer or stellate cells; they lie in direct contact with the blood on the one hand and the liver cells on the other. In the spleen, the cells in question are also to be found lining the sinusoids and forming, in addition, the branched reticulum cells of the spleen

*This is the first of three papers from a symposium on the Reticulo-Endothelial System, presented at a meeting of the Orleans Parish Medical Society, March 26, 1928, reviewing the physiology, the clinical manifestations of disease, and surgery of this important system. The other papers and the discussion of the whole symposium will appear in subsequent numbers of the Journal.

pulp. This system excludes all those cells which do not react to vital dyes, such as the cells of the blood, except the large mononuclears, the general vascular and lymphatic endothelium; also systems which react but feebly, such as the serosal cells of the coelomic cavities, the fibroblasts, plasma cells and lymphocytes. The exclusion of fibroblasts is debatable in view of evidence brought forward by Maximow that these cells can be transformed into macrophages.

Some colored substances and colloidal metals are pre-eminently taken up by the cells of the reticulo-endothelial system. All the substances specifically taken up in this way are in reality suspensions, and the mechanism of their ingestion is a kind of phagocytosis. This property of the reticulo-endothelial cells has proved of great service in defining and studying the cells belonging to this system.

Even relatively coarsely particulate material is ingested by these cells. Thus if India ink or carmine is injected intravenously, granules of the pigment are to be found shortly afterwards in the Kupffer cells, and in the similar cells of the spleen and marrow, as well as in the monocytes of the blood stream. Drinker and co-workers (1921) found, when a fine suspension of Manganese dioxide in gum saline solution is injected intravenously into a cat, that 1 hour later 40 per cent can be recovered from the liver, 47 per cent from the lungs and 4 per cent from the spleen. After an interval of 12 hours most of the material is found to have been transferred to the liver. In other animals (dog, rabbit, rat, guinea pig) the primary site of deposition is the spleen rather than the liver. A short time after the introduction of large amounts of such foreign particles into the blood, large numbers of histiocytes, laden with the particles, are found to have entered the blood stream, and can be discovered in the blood of the right heart, though not to any extent in that of the left. It is inferred that the laden cells are temporarily filtered off from the blood stream in the lungs, and only slowly carried thence to be deposited in other situations such as the liver. Gye and Purdy (1922, 1924) demonstrated that when several injections of colloidal silicic acid are given to rabbits, at intervals of a day or so, the fixed histiocyte cells of the liver, spleen and marrow become greatly enlarged and are soon detached in large numbers to enter the circulation.

This phagocytic property of the endothelial cells is not restricted to the ingestion of inorganic particles. Bacteria are taken from the circulating blood, and also effete red cells, or their fragments, which are on their way to destruction. Many of the colloidal substances find their way, in a colloidal state, into the bile, without apparently having ever been brought into contact with the liver lobule cells themselves. This is also true of bacteria.

Maximow derives all the elements of the blood and connective tissues from a common mesenchymatous ancestor. Sabin regards the various cells of the blood and connective tissue as having an independent origin. Sabin and her co-workers further derive blood cells from two types of fixed cell. The fixed endothelial cell of the specific endothelium is the source of all red blood cells as well as the clasmatocyte, the macrophage of the tissues. The white cells, including the monocytes, are derived from a second fixed cell of the mesenchyme, the reticular cell, and are formed extravascularly. As a result of their work with vital staining, they believe that there are four types of leucocytes in normal blood: polymorphonuclears, lymphocytes, monocytes, and clasmatocytes.

Recent evidence has been given by Clark and Clark (1927) showing that the origin of free macrophages from specialized endothelium, even in the specialized regions in which phagocytosis is so conspicuous, can not be considered as proved. In numerous observations of living capillaries and wan-

dering cells in the transparent tails of amphibian larvae, where the individual cells with their nuclei can be seen with the greatest clearness and watched for hours and days in the living animal and in their normal environment, Clark and Clark have seen no evidence for the formation of wandering cells or of leucocytes from the vessel endothelium. They, therefore, disagree with the view of Mallory and others that mononuclear phagocytes of the tissues and blood stream are constantly being formed from the endothelium.

Some recent observers, on the basis of the difference between the reaction to dyes of the endothelium of the splenic sinuses and that of the reticular cells of the pulp, conclude that there is no such thing as "reticulo-endothelium," at least in the spleen, but these newer studies do not invalidate the conception of the functional unity of the reticulo-endothelial system. Nearly everyone is agreed on the propriety of grouping together the endothelial cells of the venous sinuses of the spleen, the reticulo-endothelial cells of the bone marrow and lymph nodes, the Kupffer cells of the liver and the entire group of tissue mononuclear phagocytes (histiocytes). Even though the exact relationship between the reticulum and endothelial cells of the spleen and some of the other organs is not settled, there can be no doubt that these cells exercise similar functions. The term "hemolyto-poietic," introduced by Krumbhaar, is a useful one to indicate the organs subserving hematopoietic and hemolytic functions, *i. e.*, bone marrow, spleen, lymph nodes, and liver. These are the organs which are richest in sessile reticulo-endothelial cells.

The rôle of the reticulo-endothelial system in specific and in ordinary infections and in local inflammation and repair, I shall leave to others to discuss and content myself with calling attention to its relation to blood destruction. That the reticulo-endothelial system participates actively in blood destruction is now well established. The simplest manner in which this occurs is in the phagocytosis of dying erythrocytes. It is now generally accepted that phagocytosis alone will not explain normal blood destruction and this process proceeds for the most part by fragmentation of the erythrocytes with subsequent removal of the hemoglobin containing particles by the spleen and bone marrow. There is a continual destruction of red cells in the normal body. The clearest evidence is that of the close chemical relationship between the pigments of the bile and hemoglobin. It is well known that in the body hemoglobin can be converted into hematoidin, a pigment which is identical with the bilirubin of bile; this conversion is effected in old blood clots and contusions, which shows that the change can be carried out in the tissues generally; and the succession of skin tints associated with recovery from what is familiar under the name of a "black eye" is further evidence of the occurrence in a definite sequence of chemical changes of this nature.

In normal mammals the spleen appears to be the chief site of erythrocyte destruction. When the spleen is removed, the reticulo-endothelial cells of the rest of the hemolyto-poietic organs (liver, lymph nodes, bone marrow) rapidly compensate for the loss of this organ. Krumbhaar and Musser (1923) demonstrated that splenectomy in monkeys is followed by changes in the lymph nodes, bone marrow and Kupffer cells of the liver, indicating that these structures take over the spleen's share of disposing of effete erythrocytes and their disintegration products.

The present view regarding the origin of bile pigment, supplanting the older teaching of formation in the liver cells, is that bilirubin is manufactured throughout what we call the reticulo-endothelial system. These cells, wherever situated, break down red cells, remove the iron from the hemoglobin and form bilirubin, which they pass into the general circulation. The liver has no part in bile pigment formation except

by virtue of the Kupffer cells it contains. Bile pigment reaches the liver in the blood, and the hepatic cells merely secrete it from the blood into the bile. An experiment by Krumbhaar and his colleagues show the collaboration of spleen and liver in the work of blood destruction in the mammal. They rendered dogs anemic by the use of hemolytic agents, such as immune sera or toluylene diamine, and jaundice resulted. But if the splenic blood was diverted from the liver, or if the spleen was removed, the anemia and jaundice were both diminished.

That the liver in mammals is by no means the sole seat of bile pigment formation is shown also by the results of experiments by Whipple, Mann and their colleagues. Mann devised a method by which the animal remains alive for a couple of days or so following complete removal of the liver. Ten hours or less after this is done definite icterus has developed, and the urine, blood plasma and adipose tissue are stained with bilirubin. The same happens if both the liver and spleen are removed and also if liver and intestinal tract are excised or when the circulation is confined to the head, neck and thorax (Whipple). The joundice is increased if hemolysed blood is injected. These observations provide a confirmation of earlier, but less decisive, investigations of similar nature and may be taken as unequivocal evidence that bile pigment can be formed in bone marrow and other tissues. By spectrophotometric methods, Mann, Sheard and others have found in liverless animals, that there is much more bile pigment in the blood coming from the tibia and in that coming from the spleen than in the respective arterial blood. They consider that about one-half of all the bile pigment of an intact animal is produced in the liver and one-half elsewhere in the body.

That the spleen is largely involved in the process of red cell destruction in man is further evidenced by the fact that it becomes enlarged in diseases associated with rapid blood destruction. When the spleen is removed it has been found that the erythrocytes become more resistant which would seem to indicate that their ability to withstand destruction by the phagocytic cells is lessened by this organ. There can be no doubt that splenectomized animals are less liable than normal animals to develop icterus as a result of the action of blood poisons such as AsH_3 and acetyl phenylhydrazin, but this does not necessarily indicate a greater resistance of their erythrocytes, since it may rather be dependent upon the fact that the precursors of bilirubin, coming now from the bone marrow, are carried to the liver in less concentrated form, so that they are more efficiently excreted through the Kupffer cells.

The spleen forms the greater part of the reticulo-endothelial system, and so plays an important part in blood destruction. The cells of the pulp ingest and break down red blood corpuscles, remove the iron from the hemoglobin molecule and elaborate an iron free substance closely allied to bilirubin. This pigment is then discharged into the blood, possibly by the cells containing it entering the blood vessels to disintegrate there and liberate the contained pigment. After extirpation of the spleen, these functions are carried out vicariously by other representatives of the reticulo-endothelial system, such as the Kupffer cells of the liver or the reticulum cells of the lymph glands and bone marrow. When such a process occurs under normal conditions, it is quite probable that the liver acts merely as an excretory organ for the pigments in the same way as the kidney does for urea. Possessed of endothelial cells the liver itself also produces some of the pigments but no more than other organs with a similar number of those cells.

It appears that the cells of the reticulo-endothelial system behave in two distinct ways in the destruction of red cells: in the first place they ingest the cells, or fragments of them, and have often been called

hematophages on that account; secondly, they take up and convert into bilirubin any free hemoglobin with which they may come in contact. Hemolysis followed by liberation of hemoglobin into the plasma is not a normal method of blood destruction. Free hemoglobin in the blood of the splenic vein has not been detected but there is distinctly more bilirubin there than in the arterial blood. Such attack as is made on the red cells in the spleen seems, therefore, to be carried to completion, the liberated bilirubin probably being collected from the splenic venous blood as it passes the liver.

If it seems certain that hemolysis is not a normal method of blood destruction, it appears equally certain that it is often a cause of loss of red cells under pathological conditions; this is especially well seen in paroxysmal hemoglobinuria, pernicious anemia, and some varieties of hemolytic jaundice.

The theory of jaundice developed as a result of recent investigations has at its base the view that the polygonal glandular cells of the liver are not essentially concerned with the manufacture of bile pigment, but have chiefly to do with its transference from the vascular capillaries into the bile capillaries. It seems probable, if this view be correct, that in passing through the polygonal cells, bilirubin is modified in some way and this is the explanation offered at present to account for the two varieties of bilirubin made evident by the van den Bergh test. It is the cells of the reticulo-endothelial system, either those in the spleen or the Kupffer cells of the liver, which deal with the breaking down of hemoglobin and the elaboration of bile pigment. This conception is based almost entirely on animal experiments in which, during blood destruction, bile pigment, hemosiderin, and fragmented red corpuscles have been seen together in the endothelial cells of the liver. No one has ever seen hemoglobin being changed into bile pigment within the glandular cells of the liver, nor indeed has any one ever seen bile pigment in the polygonal cells at all in healthy human or animal livers. The chief difficulty lies at present in the impossibility of correlating what happens under definitely pathological circumstances with what might happen in health.

Further discussion of the reticulo-endothelial system, *e. g.*, in its relation to antibody formation and to clinical conditions, is out of my province, and I shall close with a general resumé. The reticulo-endothelial system, the cells of which are grouped together because of common phagocytic properties and reaction to vital dyes, consists of the reticular and endothelial cells of the spleen, liver, bone marrow, lymph nodes (and lymphoid tissue generally), and the histiocytes of the general connective tissue. These cells in the past have paraded under many aliases and there is still no unanimity of opinion concerning their nomenclature, origin and interrelationships. Recent investigations indicate that two types of histiocytes can be differentiated, the monocyte and the clasmatocyte, the former derived from a primitive reticular cell and the latter from endothelium. The transformations which the large mononuclear cells undergo in tissue culture give rise to the impression that transitions between these cells are best regarded as two distinct functional types (Sabin). The demonstration that the monocytes are derived from the same primitive reticular cell as the polymorphonuclear leucocytes and lymphocytes and that the erythrocytes arise from the same endothelial cell in the bone marrow as the clasmatocytes would establish, if confirmed, a close relationship between the reticulo-endothelial system and the hematopoietic system.

Reticulo-endothelial cells of the hemolytopoietic organs (spleen, liver, bone marrow, lymph nodes) may gain entry to the blood, in which they may be found constantly as monocytes as well as clasmatocytes. The potentialities of the large mononuclear cells of the blood are remarkable for their mul-

tiplicity and diversity, as illustrated by their power of transformation into macrophages capable of phagocyting blood cells, bacteria, pigment and other substances, their capacity to change hemoglobin into bilirubin, their ability to form fibroblasts, epithelioid cells and giant cells, and their faculty of metamorphosis into sarcoma-like tumor cells.

The reticulo-endothelial system plays a predominant rôle in the specific infections, tuberculosis, typhoid fever, etc. In local inflammatory processes, these cells act as phagocytes of bacteria and scavengers to remove debris and play an important rôle in the formation of granulation tissue. Evidence indicates that anti-bodies are formed in these cells.

An important function of the reticulo-endothelial cells is the destruction of erythrocytes. There is constant fragmentation of red blood cells in the circulation normally, and the fate of the fragments is to be taken up by endothelial cells both in the blood and in the hemolyto-poietic organs, especially the spleen. Under certain pathological conditions, *e. g.*, hemolytic anemias, infections, etc., this rôle is greatly increased and the reticulo-endothelial cells are found laden with the products of hemoglobin disintegration. When the spleen is removed, the reticulo-endothelial cells of the other hemololyto-poietic organs quickly take over the spleen's share of blood destruction. Bilirubin is formed in significant amount in dehepatized dogs, proving that the liver epithelial cells are not essential for bile pigment production and, on the other hand, it has been demonstrated that organs rich in reticulo-endothelial cells, the spleen, the bone marrow as well as the liver, produce bilirubin from hemoglobin.

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ACUTE INTESTINAL OBSTRUCTION.—Despite the tremendous advances in abdominal surgery, intestinal obstructions constitute the greatest surgical tragedies. Haggard says that the trouble is due to harmful and murderous purgation and to failure to recognize obstruction early. For example, operations in the first stage, say the first twenty-four hours, are extremely satisfactory. Unfortunately, two, three and often four days are allowed to elapse before operation. Even when there is severe vomiting and toxemia, the patient can still be saved. In the third stage, the general condition is so forbidding with rapid pulse, incessant vomiting, enormous abdominal distention, motionless abdomen, and leaky skin from toxic aborption that operation is futile. No improvements in operative procedures or in preoperative or postoperative treatment will ever make good the harm done by a few hours' delay in the early management. The most dangerous treatment in any acute abdominal condition, and particularly in intestinal obstruction, is purgation. It not only accomplishes nothing but adds greatly to the edema and teases the beginning necrotic bowel almost to bursting. It compounds the felony of delay. Enemas are prone to be deceptive because any action may delude one into the false hope of a so-called through-and- through action and prevent the recognition of the real condition. After the first enema, however, the use of not more than two turpentine enemas without results is an indication for operation. The most dependable symptoms are vomiting, colicky or cramplike pains, visible, palpable or audible peristalsis, inability to expel gas and feces, and absence of fever. —J. A. M. A., 90:1457, 1928.

THE B. C. G. VACCINE

The discussion of the paper of Calmette on prevention vaccination of the new born against tuberculosis, translated by Dr. J. Birney Guthrie and published in the April issue of the Journal, was temporarily delayed on account of lack of space. We are now printing below the various opinions expressed by the discussors regarding the value of B. C. G. vaccine and the advisability of attempting to employ it among the tuberculous children of New Orleans.

DISCUSSION

Dr. W. H. Robin (New Orleans): I want to inform you gentlemen that very recently I as Health Officer of New Orleans, addressed a telegram to Dr. William A. Park of New York City at the Laboratory requesting some vaccine so that I could have it to offer you tonight. I am very sorry that we have been unable to obtain it, but my application has been referred to Washington and we hope to receive some at an early date. The City Board of Health has been following this matter very closely.

About a month ago I had a visit from Dr. Matas who was seeking some data relative to our statistics on tuberculosis, in order to assist the Anti-Tuberculosis League. I made mention that the condition was such that there was no necessity to experiment with this preparation as scientists have demonstrated sufficiently for us no longer to hesitate in taking steps to procure this vaccine. The question is not so much in furnishing the vaccine as the absolute necessity of obtaining the requisite data subsequent to its use for the purpose of following closely valuable information in the course of years.

Dr. Petit only very recently was delegated by the Pasteur Institute to demonstrate in Montreal. I do not know that he has visited the United States—I have seen nothing in print to that effect. We know that the French Government is very much taken up by its success and it is being used in their foreign Clinics.

Dr. Matas has fully demonstrated the incidence of tuberculosis in our center. It is imperative that we take action without delay. I feel that it will meet a great deal of co-operation from the physicians of New Orleans. This treatment is so easy, the administration of that vaccine as recommended by Calmette, to be given by mouth within a certain time after birth, in three doses, at 48 hour intervals. Your Chairman, in the article which he has so well translated, shows the results that are obtained.

What are the highest death rates from tuberculosis? I think we stand just second to Denver in our mortality. This is not a Mecca. We have a population that unquestionably contributes much to this heavy mortality and morbidity and we ought to be most vitally interested in anything that offers a solution to this problem.

Dr. W. H. Seemann (New Orleans): We are all very much interested in anything that gives promise of hope in settling the tuberculosis problem. This matter of the B. C. G. vaccine is no new thing; it is frequently mentioned in the literature and English papers have several times referred to it. Calmette, in a paper of eight or ten pages read before the National Tuberculosis Association, goes very thoroughly into the subject and describes the method as Dr. Matas has just given it to us. Cultures are made of the tuberculosis bacilli, using a specially prepared artificial media, the culture is transferred to new media and this transplanting is continued: after a time of transplanting the bacilli seem to lose their virulence, but retain their immunization power. It is used so much in France and Montreal, and that it had not been used in the United States was a matter of surprise. I took the matter up with the National Tuberculosis Association, as president of the Tuberculosis and Public Health Association of Louisiana, which represents the National Association in this State. I was informed by one of their officials, a very reliable and conscientious man, that the statistics which formed the basis of the estimate of the value of B. C. G. vaccine were examined by the statisticians of the Association and found very misleading, if not unreliable. They are of the opinion that this vaccine may be the beginning of something that will give real and lasting benefit, but up to now the benefit has not been sufficiently demonstrated to make people on this side use it. Now, I am not opposing it, but this material is not a new thing, and in this country many men have very thoroughly considered the matter. I know of no city in the United States that is at present contemplating the use of this vaccine.

I went several years ago on behalf of the Louisiana State Board of Health to investigate a vaccine which created a greater furore than this. Congressmen, and what not, sought to influence the State of Louisiana to conduct an experiment with Friedman's vaccine (the turtle tuberculosis bacilli). Investigation proved that these bacilli had no immunization or curative properties, so we were saved considerable time and self-respect by not rushing into the matter.

Calmette is a man we all honor and revere. He needs no recommendation and I am satisfied that he is sincere in anything he utters by word

of mouth or through the literature. But I do believe we are going to have difficulty in getting people to let us use this vaccine on their children unless we can guarantee, first, that it is harmless, and, secondly, that it is going to give results. Of course we are not going to be the last, nor do we want to be the first, to advocate its use.

I was surprised to hear in Dr. Guthrie's paper that Calmette advised giving a second dose at three years of age, this dose to be given subcutaneously. One of the great points stressed in regard to this vaccine is that it can be given by mouth, at a time in early infancy, before the mucous membrane of the alimentary tract is fully developed, and at which time absorption through it readily takes place.

This certainly does not exist after the third year, and Calmette specifically warns against the use of this vaccine by needle, as he says it forms cold abscesses. If this is true, what is the use of giving it in the third year? This is one point Dr. Guthrie did not bring out in his lucid explanation of the subject.

I am for anything that will help solve this tuberculosis problem. I can say for the Association that I represent that we are willing to push it forward in any way. I am anxious to see this commission appointed—I am not opposing it—but we do not want to be over-enthusiastic. I do not believe a sufficient time has elapsed for us to judge of the merits of B. C. G. vaccine. These children on whom the experiment has been made have been under careful surveillance, well fed, given plenty of fresh air, measures that would greatly lessen the tendency to tuberculosis without the vaccine. Years ago Bang, a Scandinavian connected with the Department of Agriculture, showed that if the most badly infested cow bore a calf and that calf was removed from the mother, that calf would develop into a perfectly normal animal. If this is applicable to the animal kingdom, we have also seen its application many times with humans where the child has been taken away from the tuberculous mother and kept in healthy surroundings. Calmette's mortality figures are ever so much lower among those in which the vaccine has been used, but I am impressed with the information that I have received, that after analysis, unfortunately, the statistics are not reliable.

I hope we will go carefully and not too enthusiastically, but be sure of our ground.

Dr. W. J. Durel (New Orleans): No matter how great we are, we often make mistakes. Everything Calmette has given to the medical world did not turn out always to be right.

I remember that at a meeting of the International Congress of Tuberculosis, a seance was adjourned when Prof. Calmette and Prof. Koch had entered a lengthy and heated debate upon the route of infection in tuberculosis. Koch insisted that infection in tuberculosis only occurred through the pulmonary route, and Calmette insisted it occurred exclusively through the intestinal tract. We know they were both wrong, and that the chief source of infection is through the pulmonary route.

Now, I looked into the matter of Calmette's vaccine, and would have used it a long time ago, but for the fact that, looking over the opinions of the big men in the country in this line of work, I decided to wait a while before trying to procure the vaccine. In the last report of the International Union against Tuberculosis, I find the opinions of the biggest men in the country varying, and certainly these men are not so enthusiastic as we are here tonight.

No doubt no one claims that the B. C. G. vaccine has no immunizing properties; but remember, in a recent article by Petroff, one of our own men, it is shown there by statistics—that dead tubercle bacilli have produced immunizing effects in animals—the same as that obtained with attenuated tubercle bacilli vaccines of the order of the B. C. G. vaccine.

Calmette's vaccine has not been proven free of danger. Of course the advantage of an attenuated vaccine is that it can produce a longer immunity than the vaccine acquired from dead bacilli. With an attenuated vaccine the bacilli are not dead, and you have a constant liberation of toxin. That is why Calmette, with his attenuated tubercle bacilli, has been able to acquire a longer immunity. But, as for results, the observations with Calmette's vaccine date back many years, and since the vaccine has been put into use, many things have taken place. You know the changes in the hygienic conditions of the French people since the war, and especially since 1924.

Do you know that France, before that time, was taking absolutely no care of her milk supply? Yet they have made more progress than we have, and have better hygienic methods today than we have, after we had educated them. All this has certainly had a great effect upon the mortality of children suffering with tuberculosis.

A clear description of this is given by Couvelaire of the Baudelocque clinic. Dr. Duval has heard of this: that there is a filtrable virus liberated from the tubercle bacillus, which can pass through the placenta to the fetus, and thus cause very toxic symptoms in the fetus, and if the tissues of such a fetus are closely examined, no

lesions are to be found, but tubercle bacilli fragments can be determined. This, Calmette said, was the cause that contributed to the high mortality in children in the first three months of life.

The mortality at first was 33 per cent when Couvelaire, who is quite an internist, looked into the clinical side of the matter and found that this high mortality was not due to a filtrable virus as contended by Calmette, but was due to the separation of the new-born child from its mother, and the absolute lack of proper mother's milk. After this defect in the nourishment of these newly-born, who were separated from their parent on account of hygienic and precautionary measures, was remedied, the mortality fell in the third series to 7.2 per cent.

Let us go slowly. I have no objection to any commission being appointed at the proper tme, but we are not prepared for such research work at present.

In looking over my statistics, I find that out of about 800 and some odd patients who had children when they were "open cases" of tuberculosis, approximately not three per cent of the children developed active cases of tuberculosis in the past twenty-five years. Of course this includes only those that I was able to communicate with.

Some attribute this to a coincidence, but, nevertheless, it is so. Why? Because we have taught these people how to care for their children and thus avoid the danger of infecting them.

Calmette's B. C. G. vaccine is not a dead tubercle bacillus product, but that it is an attenuated live tubercule baccili preparation. Remember that we do know that there is a danger of such attenuated bacilli becoming virulent later on in life, if conditions in the tissues' resistance change to a favorable soil.

That is the reason why the National Tuberculosis Association has not seen fit and ready to take this matter up yet. Raw of England gives the same results with another vaccine that he thinks is immunizing and free from danger. It is also an attenuated vaccine in the thirteenth year of experimentation.

What will develop after three or five years after use of the Calmette B. C. G. vaccine, remains to be seen. Calmette keeps up his observations with his vaccine, and no doubt the children thus vaccinated are not permitted by such men as Calmette and his assistants to remain in an environment of infection. Therefore, we must consider all these factors before entering this delicate matter too radically. Suppose we wait until our next meeting before taking decisive action. Let us wait, and if we see good reasons for taking this matter up, then I heartily favor such action. But as for the radical measure we propose to undertake, Calmette himself would not be willing to have such a thing as we suggest tonight; because, as I repeat, we are not prepared for such an undertaking.

Dr. Charles W. Duval (New Orleans): It is with a great deal of hesitency that I arise to say anything derogatory of this particular work of Professor Calmette. Dr. Durel has said "great men make mistakes," and Calmette is no exception. From my knowledge of tuberculosis I would say that the giving of a living culture of tubercle bacilli, no matter how much attenuated in virulence, is likely to be frought with danger. I think this society should go slow in undertaking the vaccination of infants with the Calmette vaccine because, though attenuated, it may regain a part or all of its original virulence over a period of years while sojourning in the host. In this connection I would like to call to your attention a few facts regarding tuberculosis in children. It is thought by many authorities that at birth, even from tuberculous mothers, infants are not prone to develop tuberculosis during the first year of life. As a rule tuberculosis is contracted by children between the ages of 3 and 8 years of life, and the lesion is nearly always primary in the lymph nodes. Again it should be remembered that tuberculosis contracted at this period of life does not commonly show itself clinically until puberty or early adolescence. In these cases the tubercle bacilli have remained more or less dormant in lymph nodes for a period of years.

Dr. Seeman has already called our attention to the Friedman's vaccine which was advocated as a possible cure for tuberculosis. Friedman's vaccine was at least harmless even though composed of living tubercle bacilli, because the bacilli were pathogenic for the cold-blooded animal and saprophytic for man.

I in every way concur in the views expressed by Dr. Seemann and Durel, namely that we should go very slowly indeed with the administration of Calmette's vaccine, and that it would be far better for this society to consult and get the opinion on this subject from well known authorities in the United States on tuberculosis.

Dr. Isidore Cohn (New Orleans): A pathologist has just apologized for voicing an opinion on this subject so I, as a surgeon, am apologizing for doing likewise. However, I am not going to talk about the treatment of tuberculosis.

The lack of enthusiasm displayed at the proposal to have a commission inquire into and report on the work of Calmette on vaccination against tuberculosis with the B. C. G. is in keeping with

the reception accorded other great innovations in the history of medicine. The use of this vaccine as a safeguard against tuberculosis is endorsed by the Pasteur Institute, named after the great Louis Pasteur, whose researches in chemistry and pathology led to the discoveries which were looked upon with such skepticism for a while. Speaking of Lister's antiseptic system of surgery, Prof. T. G. Richardson, a surgeon, commented on the fact that twenty years after not a single surgeon in his State was following the Listerian plan.

Now Dr. Matas is not asking us to use this vaccine, but merely requesting that we open our eyes and investigate. Therefore, let us not throw it aside, nor hesitate until we are among the last to take some decisive action in the matter.

Dr. John Signorelli (New Orleans): The subject brought out by Dr. Guthrie certainly calls for more than a mere academic discussion. As Dr. Cohn tells us, it would be wrong for us to refuse to investigate a work so great as this portends to be.

As far as the statistics given by Dr. Guthrie, I do not think anyone can place too much reliance on them; the fact that clinical tuberculosis is not seen in children so young is not mentioned by the authors in their statistics—therefore the statistics give us nothing. From the bacteriological view, however, I am firmly convinced that if we can add anything in the clearing up as to whether this work is based on a solid foundation, we should be setting ourselves a record for which we cannot be reproached. I see no harm that can result from investigation. A commission can be made not only to investigate the work in Paris, but we can carry on experimental work here in New Orleans. We have men fully capable of carrying on this work in our clinics and laboratories and a continuance of these observations and experiments will help us to determine whether there is value in this work. If this is the beginning of something that is going to give us protection from tuberculosis, we will be doing merely what society demands of us as doctors.

Dr. J. Birney Guthrie (closing): It would seem that the necessity exists for looking further into this subject. We do not know of any immunity in children that protects them against the infected individuals with whom they must live in close contact. During early infancy these children are particularly susceptible to inoculation. Now, as regards the virulence of the culture, we are going to get the culture and place it in the hands of those who are capable of working with it to determine virulence. Dr. Calmette has tried to make the bacilli avirulent for thirteen years and it remains an attenuated organism retaining its immunizing property.

Dr. Duval: What was the source of that culture?

Dr. Guthrie: Bovine.

This vaccine has been used in thousands of cases, even in Indo-China, showing how much faith the French have in the idea. It seems unnecessary for me to suggest that we wait ten years. Here is something that has been given out by the Pasteur Institute, and Dr. Duval tells us to wait ten years. We appreciate the words of caution and are going to be cautious about the thing; but we certainly do not want to remain idle and await for further developments without doing our share.

Dr. Duval: I merely made the suggestion because I recognized quite an element of danger in an attenuated culture. If it was a killed culture it would be different.

Dr. Guthrie: We have a culture that has been given us by the Pasteur Institute. There is not a laboratory man who does not go to work on any culture of acid-fast organisms, whether it is virulent or whether it is not virulent by making the test on a guinea pig. When somebody puts into the hands of Dr. Duval a culture and tells him that after inoculation it will give protection against the most virulent culture in an ordinarily lethal dose, he tests it on a guinea pig or a rabbit first. We know Calmette's vaccine is an attenuated culture and that it can produce immunity in susceptible animals. If the guinea pig can be protected, the child can be protected. I appreciate that we should proceed cautiously, but we have statistics showing the results in 52,772 infants inoculated at birth, the mortality rate 3.1 per cent when inoculated, against 8.5 per cent when not vaccinated. As to the statistical analysis Dr. Duval mentions, these have been commended by statisticians, not doctors—pure statisticians, men who make the study of statistics the main object of life. These men have analyzed these statistics and found them properly estimated.

NEW ORLEANS
Medical and Surgical Journal

Established 1844

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SUBSCRIPTION TERMS: $3.00 per year in advance, postage paid, for the United States; $3.50 per year for all foreign countries belonging to the Postal Union.

News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

Manuscripts should be addressed to the Editor, 1551 Canal St., New Orleans, La.

TWO NEW PRESIDENTS.

The Lousiana State Medical Society at its Annual Meeting in Baton Rouge, and the Mississippi State Medical Association at its meeting in Meridian, elected presidents and other officers for the coming year. Dr. Leon J. Menville, the new President of the Louisiana Society has had a most distinguished career in medicine in this State. For some years he has been President of the Louisiana State Board of Medical Examiners, is a Counselor of the Radiological Society of North American, and the past President of the Louisiana State Radiological Society, as well as a former Vice-President of the Radiological Society of North America. Dr. Menville is well known to the graduates of Tulane University, where for many years he has been an active teacher of the young doctors-to-be. Dr. Menville has had many honors conferred upon him, honors which reflect the capability of the man, as well as his charming and delightful personality.

Dr. William Henry Frizell has been a practitioner of medicine in the State of Mississippi for many years. During this time he has been closely associated with the affairs of the Mississippi State Medical Association. His sincerity, his kindliness and his agreeable manner have all endeared him to members of the Association. His election to the presidency is a well deserved honor, bestowed upon a man who is appreciated by his fellow physicians.

SYNTHALIN

In 1926 Frank, working in Minkowski's Clinic, brought out a synthetic compound of deca-methyl-diguanidine, which he called synthalin. This preparation, he showed, is able to reduce the blood sugar in experimental animals, and if given in sufficiently large doses, will produce the usual symptoms of hypoglycemia. The product has been put upon the markets and has been used extensively on the Continent for the treatment of the relatively mild diabetic. Twenty-seven articles concerning this drug appeared in foreign journals last year. Papers are now beginning to appear in American literature. One of these is a very careful study of the use of the preparation in four patients who represented mild and moderately severe cases of diabetes. As a result of this study and other studies it becomes plain that in synthalin a valuable remedy has been offered to the medical profession for the treatment of the mild and relatively severe diabetic. The introduction of a drug which taken by mouth relieves ketonuria, helps clear up glycosuria and hyperglycemia, alleviates the symptoms of diabetes and improves the patient's general condition, is a tremendous step in the advancement of diabetic therapy.

A word of warning should be uttered, however, against too general employment of this preparation. It is not as exact in its dosage as is insulin, it can not cause a disappearance of glucose in the urine in the more severe cases, nor does it lower the blood sugar as does insulin.(1) It often causes nausea and gastric discomfort when given in large doses, and lastly its action is very slow, days instead of minutes being required to get a noticeable effect, precluding its use in diabetic coma or in any of the emergencies of diabetes.

THE FIFE BROTHERS AGAIN

The medical profession of the City of New Orleans read with great surprise of the acquittal, in the District Court, of the notorious chiropractors, the Fife brothers, recently pardoned and brought to trial again for the repetition of offenses apparently similar to those which they were formerly convicted. They were acquitted largely, according to the newspaper reports, upon such technicalities as for example that the presumably normal individuals for whom they prescribed were not shown to be free from disease by expert examination and testimony.

The acquital of these men possibly may do great harm to the civilian population of Louisiana, opening the flood gates to a multitude of unqualified practitioners. The laity seem to think that the medical practice act is for the protection of the medical guild. On the contrary such as far from the case. This act is solely for the purpose of protecting the ignorant and the thoughtless person who is unfamiliar with medicine. The medical profession invariably has to conduct the fight, strange as it may seem, for the protection of people against unqualified practitioners, and at considerable expense. Their fight is entirely an altruistic one, just as has been their struggles for the introduction of public health projects, community hygiene, life extension, child welfare, and a host of similar measures, each one of which takes from their pockets much more than possibly could be done by the Fife Brothers. It makes no difference to physicians that the Fife Brothers may take a few paltry dollars from their pockets, a concept held by many people as to the reason the profession of medicine endeavors to stop the activities of these men. On the contrary, it is because they dread and loathe the idea of any individual, unless thoroughly trained, being responsible for the very life of the sick.

Apparently the sympathy of the jury and the judge was with the Fife Brothers, who they felt were being persecuted by the Board of Medical Examiners. The only comment that can be made upon this is to ask if they would care to have the Fife Brothers in charge of the health conditions in New Orleans during a yellow fever panic? Would they have them take care of their child ill with diphtheria, or would they purposefully have them attend a difficult and dangerous labor of some one near and dear to them? If they would be willing to have these cult leaders do this, then we have no fault to find, but if they would not, then certainly we are in a position to criticise the verdict, because there are other people who may not have the ability or the mentability to contrast the merits of men who have spent years in learning medicine, with those who have spent but a few months.

The Fife Brothers were not persecuted as individuals. They represent an aggressive, militant organization, which is striving desperately to break down the medical practice laws which have been made so wisely by the Legislature for the protection of Louisianians.

(1) Ringer, A. I., Biloon, S., Harris, M. M. and Landy, A.: Synthalin—Its Use in the Treatment of Diabetes. Arch. Int. Med. 41:453, 1928.

HOSPITAL STAFF TRANSACTIONS

THE VICKSBURG SANITARIUM.

The regular monthly meeting of the Staff was held May 12, 1928. The following series of interesting case reports were presented:

1. *Abscess of the Lung.* Presented by Dr. G. M. Street. A white female, aged 30, was admitted to hospital April 29, 1928. Began four weeks ago to have aching and fever with great prostration; very little cough. Fever continued daily, reaching 101° to 104° F. for a week; family physician could find no physical signs in lung. Blood culture taken on advice of consultant was reported to show staphylococci. Three doses of mercurochrome were given followed by reaction each time. After first dose temperature came to normal for two days; after second dose for one day; worse after third dose. No urinary or pelvic symptoms; no abdominal symptoms. Good appetite and good digestion.

Physical examination: On admission, temperature, 99.4°F; pulse, 80, regular; blood pressure, 130/80; respiration, 17, regular. Rather obese; nose and throat negative; neck negative; lung showed few fine rales over right apex, no dullness. Heart, abdomen, pelvis, and reflexes not remarkable.

Working diagnosis: Lung abscess or unresolved pneumonia.

Blood: Hb., 77 per cent; erythrocytes, 3,832,000; color index, 0.90; leukocytes, 13,8000; differential leukocyte count, small monon., 11, large monon., 7, polymorph. neutrophils, 82 per cent; no malaria; Wassermann test negative.

Urine: Slightest possible trace of albumin and large trace of indican; otherwise not remarkable.

Sputum: Muco-purulent; some streptococci; some fusiform bacilli and spirilla (Vincent's organisms); some small bacilli consistent in appearance with influenza bacilli; no tubercle bacilli found. Repeated examinations of sputum showed similar findings. Some blood was found at times.

Blood culture and Widal tests were negative.

Roentgen-ray of chest showed area of dense opacity in right apex.

Treatment: Pneumothorax (four times) to gradually collapse lung and abscess. Expectoration was free at first with considerable pus, less now. Temperature gradually coming down—now normal to 99° F. Patient is more comfortable; less cough; roentgen-ray shows abscess shadow less dense.

2. *Carcinoma of the Stomach. Resection, Polya Operation.* Presented by Dr. A. Street. Male, aged 50, white; clerk in a store. Chief complaint is digestive disorder, present for more than 10 years. At present has some epigastric pain, beginning shortly after eating, partially relieved by alkalies. Vomits very frequently, usually shortly after eating; no coffee ground type of vomiting but has vomited blood streaked material. Bowels very constipated. For last six months symptoms have been worse, frequently confining him to bed; rapid loss of weight.

Physical examination: Patient is thin and weak; skin only slightly pale; scaly eruption on dorsal surfaces of hands suggestive of pellagra. Blood pressure 130/80. General examination otherwise not remarkable except for abdomen which is flat; no rigidity; no definite tenderness. There is a sausage shaped mass, made out with difficulty, just above umbilicus, movable.

Urine showed nothing remarkable except for slight trace of albumin.

Blood: Hb., 75; erythrocytes, 4,064,000; leukocytes, 9,100; polymorphs, 60 per cent; Wassermann test, negative; sedimentation rate of erythrocytes sharply accelerated; volume index 0.43; icterus index, 1.7.

Gastric analysis: Total acid, 31; free HCl, 16; combined, 7; occult blood (+).

Radiographic and fluoroscopic examination showed an immobile, cylindrical area of stomach just proximal to pylorus; lumen apparently not especially narrowed. Duodenal cap small and irregular.

Fig. 1. Specimen of cancer of stomach

Operation, April 27. High right rectus incision. There was large growth in pyloric end of stomach, about 3 x 2 inches; not fixed to surrounding structures; glands about size of beans in both greater and lesser omentum. The tumor bearing area of stomach with ample margin beyond growth was easily resected; stump of duodenum inverted; and entire length of divided end of stomach anastamosed to side of jejunum, retrocolic method. The margin of the opening in the meso-colon was anchored to the stomach just above the anastomosis. The stump of the gastric artery was anchored to the falciform ligament of the liver. Transfusion of 500 c.c. of blood was done a few hours after operation. Stomach was kept empty by means of Jutte tube and 1000 c.c. of 5 per cent glucose in 1 per cent salt solution was slowly given intravenously each day for three days.

Convalescence has been quite uneventful. Patient is taking adequate nourishment, is rapidly gaining in strength, and is free of symptoms. Tissue pathology reported by Dr. Lippincott: Stomach, adeno-carcinoma (10 per cent differentiation); numerous mitotic figures; ulceration; acute inflammatory; granular necrosis. Growth extends to and invades circular muscle. Marked chronic, some acute inflammatory throughout. Lymph nodes, marked chronic inflammatory; passive congestion. Some fat adherent with active congestion and chronic inflammatory.

Diagnosis: Carcinoma of pyloric end of stomach; lymphadenitis, chronic. For illustration of gross appearance, see Fig. 1.

Discussed by Drs. G. M. Street and Parsons.

3. *Acute Pleurisy, Relieved by Diathermy.* Reported by Dr. L. J. Clark. White, male, aged 26, was seen at home at 11 P. M., with pain in anterior chest wall, lateral to heart, most marked on inspiration; some friction; temperature normal; little cough. Morphin administered. Pain continued to grow worse; patient was grunting so as to be heard from the street and was blue from holding the breath. Morphin repeated; brought no relief. Finally condition so bad that chloroform was administered, but pain returned as soon as patient allowed to come from under its influence. Next morning pain still continuing, patient was admitted to hospital and given diathermy treatment. Pain completely relieved in 30 minutes. Similar case 8 months ago with involvement of diaphragmatic pleura was similarly relieved.

Discussed by Dr. G. M. Street. External heat does not relieve these patients. It may be that diathermy produces a slight exudate which separates the surface of the pleura and thus relieves friction.

4. Value of Ultra Violet Radiations Following Sinus Operations. A presentation by Dr. E. H. Jones.

Special reports: The meeting of the Mississippi State Medical Association at Meridian. Dr. L. S. Lippincott, Dr. G. M. Street.

THE SOUTHERN BAPTIST HOSPITAL.

Dr. Waldemar R. Metz presented a case which was a most unusual one, presenting some very interesting features both as to the condition itself and the complications which followed its correction. It should be of interest to the general surgeon, the neurologist and particularly to the genito-urinary specialist.

This boy was admitted to the U. S. Marine Hospital in June, 1923, practically five years ago, complaining of a mass in the left side of the abdomen. According to his statements, this mass was of some five months duration and had gradually become larger. The mass was apparent to inspection and palpation revealed it to be about the size of a small water melon. It was not painful and manipulation showed it to be rather fixed.

The mass was finally thought to be kidney. Cystoscopy showed both ureters to be situated high up and the left side was impervious to catheterization. The function on the right side was normal. The Wassermann reaction was positive.

Having previously operated upon emergency cases whose blood later showed a positive Wassermann, Dr. Metz was not prepared for the sequellae which were to follow operative intervention in this case.

The patient came for operation and, through an Albarran incision, the mass was exposed. Evacuation of its contents showed old pus and urine to the amount of about 1200 c.c. Had the mass been solid it would have been manifestly impossible to have removed it extra-peritoneally. There was nothing left of the renal parenchyma, and this large pyonephrotic kidney had apparently not functioned in many months. The ureter was a solid band, about the size of a pipe stem, and was dissected almost to its bladder insertion, and removed. Sections from the kidney and ureter made by Dr. Lanford showed the condition to be probably tuberculous.

Following operation within twenty-four hours, patient developed paralysis of both legs from the waist down, together with paralysis of the bladder and rectum. Large blebs appeared on the soles and dorsum of both feet, and in the next two days gangrene of the great toe of the left foot and beginning gangrene of the small toes was noted. A large slough was present on the outer portion of the right foot, exposing the metatarsal bone. The dorsalis pedis and tibial ves-

sels were not palpable, and a diagnosis of endarteritis obliterans was made. This had apparently been precipitated by the luetic infection and had occurred too rapidly to have been trophic in origin.

On a carefully planned anti-leutic treatment, the paralysis cleared up and although the great toe on the left foot had to be amputated, together with two of the small toes, the patient made a very satisfactory recovery, and, as can be seen, is to all intents and purposes all right after five years observation.

It might be well to mention that the patella reflexes were absent and the pupils fixed to light.

Discussion: Dr. Charles S. Holbrook said that it certainly must have been a cord lesion, as the man was paralyzed from the waist down, but this would not account for his gangrenous condition, which apparently was a result of the vascular lesion.

He was unable to explain how the patient's complete recovery had taken place. From the history it looked as though it must have been a myelitic disturbance. It was certainly a most unusual case.

Case of Osteomyelitis: Dr. Frank Gallo presented a very interesting case of osteomyelitis.

History: On Wednesday, February 29, this boy was in school and a fire drill took place. He jumped up at once and struck his leg about two inches below knee proper. He kept on going, however, never stopping at all. The next day he went back to school. There was some pain, but the boy did not complain. He went to school again on Friday. There was more pain, but still he did not complain. On Saturday he had some fever, stayed in bed the whole day until Sunday night, March 4, when Dr. Gallo was called in. The boy had temperature. Having osteomyelitis in mind, Dr. Callo thought it best to operate. He operated on the boy at 11:00 o'clock Sunday night, making an incision on anterior aspect of tibia, exposing the tibia. He drilled three holes on median aspect and found nothing of note, then drilled three more holes on lateral side and met with necrosed bone matter in form of first stages of osteomyelitis. He chipped out small portion of bone, left wound open and put in one pack of iodoform gauze, then applied posterior splint, then put boy back to bed. The boy's temperature was normal in forty-eight hours.

A secondary infection set in about a week after. The boy was kept in the hospital about three weeks. The wound was almost well, until the other day, when playing, the boy slipped on sidewalk and fell, hurting the same knee again.

Discussion: Dr. Carroll W. Allen said he thought this case presented by Dr. Gallo was very interesting. It brought to mind the fact that osteomyelitis is always an emergency in its acute stage, as much so as an acute appendicitis or ruptured tube. The more familiar we are with these cases, the more competent we are to deal with them.

Pernicious Anemia: Dr. Shirley C. Lyons presented a very interesting case in a well advanced condition of pernicious anemia, which has responded rapidly to liver therapy.

Mr. H. J. P. White male, age 65. Admitted to the hospital on March 29, 1928. Chief complaint: "Peculiar feeling in chest, shortness of breath, progressive loss of weight and strength." He has been gradually failing in health for the past seven years. For past two years disability has progressed rapidly, until, for the past three months, patient has been confined to bed, due to general weakness: intermittent diarrhea and constipation. For several months he has suffered from sore mouth and tongue. Almost any kind of food disagrees with him. He has no desire for food. There has been marked puffiness of hands and feet for past four or five weeks. There is no history of previous illness.

Patient has been a moderate user of alcohol. Chews tobacco most of the time.

Examination revealed a well-developed, poorly nourished male with evidence of marked anemia. The skin is dry and inelastic, and of a greyish yellow tint. The tongue is red and furrowed. Systolic mumur present (hemic). Examination otherwise was negative.

Blood picture on admission—Red blood cells 1,115,000. Blood platelets 45,000. Hemoglobin percentage 30. Blood chemistry—normal limits. White blood cells 5,000. Red blood cells—4/2/28—520,000. Small mononuclears 46 per cent; neutrophils, 25 per cent; eosinophils, 29 per cent. Many reticulated red blood cells; anisocytosis, poikilocytosis, and polychromatophilia, marked.

On April 4, 500 c.c. of citrated blood was given. This was repeated on April 7. Following the second transfusion, patient showed marked improvement.

On April 3, patient was placed on liver extract, ampoules two, four times daily. He was ordered full tray with liver once daily. This was continued until April 14, 1928, when patient was discharged. At this time patient stated that he felt better than he had for six or seven years, and he was able to be up for four or five hours without tiring. Red blood cell count, April 14, 1928, was 2,875,000. Hemoglobin percentage, this same date, was 60.

Patient was sent home on the above routine.

He returned today, May 8, to the hospital, which is less than one month since discharge, for a check-up examination. He has been attending to his usual business and states that he "feels as well as ever before in his life". Red blood cell count, 3,800,000. Hemoglobin percentage, 60.

Patient was advised to continue the liver extract, one ampoule three times daily, indefinitely.

Discussion: Dr. Carroll W. Allen said he had the pleasure of seeing this patient with Dr. Lyons in consultation. He would not have known him now, as he was so pale and white before, and is now so much better.

Essential Hematuria: Dr. R. M. Willoughby presented a case of very unusual hematuria, presenting practically no pathological findings. The patient repeatedly bled from the right kidney. Nephrectomy was contemplated, but a subsequent cystoscopy proved hemorrhage to be as great from the left kidney, with no bleeding now from the right side. Transfusion was done, giving the patient 500 c.c. of whole blood by the direct method of Head, with complete recovery in four days. Patient has been watched for three months with no recurrence of the hemorrhage.

Discussion: Dr. W. A. Reed said the case was extremely interesting. It duplicated exactly the findings in a similar case of a doctor's wife that he saw several years ago. The picture was identical, except that she had several attacks of hematuria. At one time the right kidney would bleed, at another time the left one would bleed, and at times both would bleed. Practically all the usual forms of treatment were done, with the exception of blood transfusion. He was never able to make a diagnosis, although he finally concluded that he was dealing with a hemorrhagic nephritis. One interesting point was that during the time that bleeding occurred from one kidney, the phthalein excretion from the bleeding kidney would practically stop. Just as soon as the hemorrhage stopped, the function would immediately return. It was astounding to see how rapidly the function would restore itself. He saw this patient last week and she seems to be absolutely free of all symptoms, and her urine is at present normal, with the exception of a few hyaline casts, which, of course, one would expect in an individual sixty-two years of age. His diagnosis still is nephritis. He is led to believe that there is always a cause for essential hematuria, although it is extremely difficult, and at times impossible, to find it.

Dr. H. W. Lindner said the case was very interesting. As Dr. Willoughby brought out the value of blood transfusion, it brings to the urologist the fact that we should not be too hasty in doing nephrectomies in hematurias for which we cannot find any definite cause. A few cases like this would teach us a lesson and cause us to be more conservative in cases of this kind.

Dr. J. A. Lewis said that this case was very interesting to him, as he had seen a number of these unidentified hematurias. It is particularly known in the Red River district of Louisiana and parts of Arkansas. It seems to predominate in young individuals, more particularly in boys than in girls, from fifteen to twenty-five years of age. He has known of as many as eight or ten deaths in a local community in one week. It is supposed to be associated with malaria. The blood, in most instances, is found to be perfectly normal, though quantities of blood have been passed from the genito-urinary tract. It is said to be associated with malaria, and not associated with quinin medication.

Dr. H. W. E. Walther said that we recall that, a few years ago, we were very much criticized for adhering to this "essential hematuria." He was very much gratified, a few months ago, to read in the Journal of the American Medical Association a review of this subject by Dr. Bumpus, in which he said that we cannot get away from the term "essential hematuria." So little hematuria is observed among nephritics. Yet, in an effort to explain the cause of so many hematurias, we have been leaning on the shoulders of nephritis. We will have to get away from that theory—it does not seem to hold.

In a great many cases of hematuria, we are dealing with some kind of blood dyscrasia. We are dealing with a borderline condition of some sort that has a relation to hemophyliac-like conditions. What the true cause is, we do not know. But this case taught him a very definite lesson and, he believes, that in the future he is going to use transfusion early in the case instead of letting the case bleed on for several weeks. There are arguments against stopping these hematurias for for fear of masking some malignant growth. Of course, the urologist, when called in to see a case, is going to make every effort to rule out cancer first.

Dr. Carroll W. Allen said that the case presented some very interesting features. It seems that blood transfusion is coming into a wider range of usefulness, as it has demonstrated its efficiency in a great variety of conditions.

Dr. R. M. Willoughby, in answer to several questions, stated that this patient is a resident of New Orleans.

On the day he found the left kidney to be bleeding a phthalein test was done, and it was found that the right kidney was excreting 15 per cent in fifteen minutes. He neglected to put down the urinalysis in this case. A urinalysis was done daily for two weeks and no casts were found during this time. He first thought of a renal papillitis, nephritis having been ruled out, but the kidney did not respond to silver nitrate instillations.

Dr. Bumpus and one of his co-workers reviewed thirty casese of so-called "essential hematuria", and they found no other pathological findings than that the platelets in these cases ran about 150,000, or one-half normal.

Dr. Willoughby thinks the case that Dr. Lewis referred to is hemoglobinuria. A continued injection of quinin lowers the permeability of red blood cells with the result that they crenate much more rapidly, allowing the hemoglobin to filter through the kidney tubules.

Hydronephrosis: Dr. H. W. E. Walther made a clinical report upon twenty-three cases of hydronephrosis treated conservatively in the urological division of the hospital during the year 1927. He stressed the fact that in a large number of instances hydronephrosis (like polycystic kidney) is a bilateral condition. Surgical intervention in hydronephrosis should be reserved for those cases that fail to respond to non-operative procedures. He stated that in the series reported he had had a number of patients who, prior to admission to hospital, had had one kidney removed for a similar condition.

By means of cystoscopy and the introduction of a Garceau 11 F catheter into the hydronephritic sac and permitting this catheter to remain in place over a period of from twelve to twenty-four hours, a very appreciable degree of relief was experienced by the patient. The hydronephrosis can be easily reduced by this indwelling catheter method of treatment, is painless, and requires a minimum time of hospitalization of patient.

Twenty slides were shown, illustrating different types of hydronephrosis that respond to conservative management.

Discussion: Dr. H. W. Lindner said that he felt that Dr. Walther was to be highly commended for stressing conservatism in treating hydronephrosis. Of course, as we all know, the prime object in the treatment of hydronephrosis is, first, to determine the cause and to remove it. In such cases as stricture of the ureter, or ureteral calculi, we can get wonderful results, and, in many cases (where it has not gone too long) cures by carefully dilating the stricture, and, in other cases, dilating the ureter, allowing passing of stone. He thought that if many of these late cases of hydronephrosis in which the pyelogram picture shows hydronephrosis of various grades were referred for a thorough urological examination when the patient first has symptoms of pain in the lumbar region, or in the upper quadrant of the abdomen, that many of these cases could be checked before any real damage is done to the kidney. He has had occasion in the recent past to see a number of these cases in which patients had come in with lumbar pain, but yet showed no real definite pathology on the pyelograms. In many of these cases there would not be a definite stricture of the ureter, but you could sense a tightness where it would be necessary to pass a number four catheter. In this type of case, showing no pathology, the patient will gradually improve, so far as the symptoms for which he had come to the doctor are concerned.

Dr. W. A. Reed said it was certainly a treat to him to hear this excellent paper and to see these unusually beautiful pyelograms. They certainly demonstrate the fact that the method Dr. Walther has advocated and is pursuing is the ideal method.

He believes that the indwelling catheter serves two purposes. It not only provides the immediate drainage that is necessary for the improvement of the case, but it also dilates the stricture that one usually, not always, finds in the ureter.

He has not been using the Garceau catheter as frequently as Dr. Walther has. There is no question that it works and works well, as Dr. Walther's pictures and paper prove. He stated that he has left a No. 8 F catheter in the ureter as long as 17 days without removing it, so that an indwelling catheter can stay even that length of time without producing any serious damage. Incidentally, this particular patient was pregnant, and at no time did she show any signs of colic, cramps, or uterine disturbance.

Dr. Carroll W. Allen said that he thought Dr. Walther's paper had been very instructive to all. Like many of the things he does and says, we always get much instruction and good ideas from him. He thought the suggestion of inviting the co-workers of other hospitals to participate in discussions in which they are interested is an excellent one.

CHARITY HOSPITAL MEETING.

(Medical Section)

The regular monthly meeting of the medical section of the Charity Hospital Staff was held on Tuesday, May 15, 1928, at 8 p. m. in the Interne Library.

Dr. Fossier discussed and outlined briefly some work on the production of experimental extra systoles in man. The subject of the experiments was an individual with a congenital defect of the chest wall, allowing of ready manipulations through the small amount of skin and superficial tissue present. The case was not shown. Dr. Guthrie discussed the subject matter briefly.

Dr. Storck presented two case reports. The first was that of a case of argyria in an adult following the use of a 20 per cent solution of silver nitrate as a local application to the tonsils and pharynx over a period of time. The second case report was that of a case of molluscum fibrosum, the differential diagnosis being considered. Neither case was shown.

An unusual case of pneumonia in a 6-year-old male child was shown by Dr. R. de la Houssaye. The interesting feature of the case was the presence, during the acute stage, of all the neurological signs of a meningitis. Spinal fluid examinations had been negative except for an increased pressure. A discussion followed as to the diagnosis of meningismus or true meningitis. The fact that there had been an absence of physical signs of pneumonia in the first 48 hours also occasioned discussion. Drs. Jamison, Fenno, Lyons and Guthrie spoke briefly.

A motion was introduced by Dr. Robbins, and carried, to appoint a committee to investigate the possibilities for revising the existing antiquated nomenclature of diseases now in use in the hospital. Drs. Robbins, Jamison and Musser were appointed to this duty.

WILLARD R. WIRTH, M.D.

THE SONIAT MERCY HOSPITAL.

Drs. Scott and Chapman were appointed as residents for the year beginning July, 1928.

A new urology room with moderen up to date equipment, including a Young's table and portable roentgen-ray has been installed in the institution.

The scientific program was taken up by Drs. Dicks and Leckert. Dr. Dicks reported a case of bilateral streptococcal salpingitis, the pre-operative diagnosis being appendicitis and the immediate post-operative diagnosis being obscure as far as etiology was concerned until the bacteriological examination was made. The patient made an uneventful recovery even though no drainage tubes were resorted to. Dr. Dicks also called the attention of the staff to an interesting case of subcutaneous emphysema occurring in an obstetrical case during labor. The rupture had occurred either in the lower trachea or near its bifurcation. Discussion by Drs. Ficklin and Irwin.

Dr. F. L. Leckert presented a case of primary carcinoma of the appendix occurring in a child. He gave a review of the literature with the age incidence and prognosis. The pre-operative diagnosis was sub-acute appendicitis. Discussion by Drs. Ward, Hauser and Ficklin.

MAURICE CAMPAGNA, M.D.,
Secretary.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the past month, besides the regular meeting of the Board of Directors and one regular scientific meeting, the Society has celebrated its Fiftieth Anniversary at a special meeting, and there has been a joint meeting with the Louisiana Dermatological Society.

At the regular Scientific Meeting the following program was presented:

Demonstration showing comparative results with the Wassermann and Precipitation Tests.
By.....Dr. H. W. Butler

The Butler Slide Test.
By.....Dr. B. G. Efron and Dr. C. A. Weiss

Moving picture film, "The Doctor Decides," through the courtesy of Dr. W. H. Seemann, President of the Tuberculosis and Public Health Association of Louisiana.

At the special meeting commemorating the Fiftieth Anniversary of the Society, which was probably the best attended meeting in the past many years, the program was as follows:

a. Musetta-Valse .....La Boheme
b. Fairy Roses.....Colridge Taylor

Miss May Mares.

The Evolution of Medical Teaching in New Orleans, by Dr. Ernest S. Lewis.

a. Tone Picture.....Ferrata
b. Prelude C minor.....Rachmaninof

Miss Marie Elise Dupuy.

The Early History of the Orleans Parish Medical Society, by Dr. Albert E. Fossier.

a. Ave Maria.....Schubert
b. Spanish Dance.....Sarasate

Adrien Freiche.

An address by Dr. G. Farrar Patton.

a. Les Deux Serenades.....Leoncavello
b. Carme .....Danza
c. Flirtation .....Meyer-Helmund

Paul Jacobs.

The Relation of the Physician to the Public, by Honorable T. Semmes Walmsley.

Violin obligato.....Adrien Freiche
Accompanists: Mrs. Mayer Prince, Dr. Homer Dupuy.

Refreshments.

The complete transactions and speeches will be published in a later issue of this Journal.

At the joint meeting with the Louisiana Dermatological Society the following program was presented:

Treatment of Epidermomycosis of the Palms and Souls.
By.....Dr. A. L. Glaze of Birmingham, Ala.

Diagnosis of Leprosy, illustrated by lantern slides in natural colors.
By.....Dr. O. Denney of Carville, La.

This meeting was also exceptionally well attended.

This office wishes to call attention of the membership that a special private line telephone has been installed in a private booth for use by the membership.

We are in receipt of the following telegram from Senator E. S. Broussard, which is self-explanatory:

"Senate this afternoon defeated proposed increase in Narcotic Tax."

The third quarter premium of the group insurance is due June 5th. Please send in your check immediately.

Dr. Herbert C. Cannon has been elected to Interne Membership.

TREASURER'S REPORT.

Actual Book Balance, 3/29/28	$3,304.60
Receipts during April	$ 895.02
	$4,199.62
Expenditures	$3,078.47
Actual Book Balance	$1,121.15

LIBRARIAN'S REPORT.

Ninety-six books have been added to the library during April. Of these 63 were received by binding, 8 by purchase, 11 by gift and 14 from the New Orleans Medical and Surgical Journal. Note of new titles of recent date is made in the list, herewith appended.

The reference work has been heavy during April. In addition to the numerous room calls for quick reference material, 2 lists have been prepared and added to the files on subjects as follows:

Episiotomy.
Emphysema in Labor.

Gifts have been received from the following persons and agencies:

Dr. Haidee Weeks.

Dr. Emile Bloch.

Tulane University School of Medicine.

The increased assistance in the library has enabled us to begin again on the work of cataloging and filing our collection of pamphlets and reprints, which had to be discontinued a year ago for want of time. Two hundred and twenty-five pamphlets and reprints have been cataloged and filed during April, and we hope to bring this work to completion as rapidly as possible.

NEW BOOKS—APRIL

Ewing—Neoplastic diseases. 1928.

Solis-Cohen—Pharmacotherapeutics. 1928.

MacKee—X-rays and Radium. 1927.

Hazen—Diseases of the Skin. 1927.

Hewlett—Pathological Physiology. 1928.

Damon—Food Infections and Food Intoxications. 1928.

Cope—Clinical Researches in Acute Abdominal Disease. 1927.

Cushing—Tumors of the Nervous Acusticus. 1927.

Fracaster—Syphilis. 1911.

Wenyon—Protozoology. 2 v. 1926.

Gay—Typhoid fever. 1918.

Watson—Hernia. 1924.

American Laryngological, Rhinologocal and Otological Society Transactions, 1927.

Mississippi Year Book. 1928.

Annual Report of Institute of Medical Research of the Federated Maylay States. v. 12-13. 1913-14.

New Orleans—Council of Social Agencies—Hospitals and Clinics of New Orleans. 1928.

American Laryngological Association. Transactions. 1927.

Mitchell—Castile Soap. 1927.

Moynihan—American Addresses. 1917.

Royster—Appendicitis. 1927.

Hare—Practical Therapeutics. 1927.

Harvey Lectures—1926-27, 1928.

Redway—Springtime of Physick. 1928.

Barrington-Ward—Abdominal Surgery of Children. 1928.

Riviere—Pneumothorax and Surgical Treatment of Tuberculosis. 1927.

H. THEODORE SIMON, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

ST. TAMMANY PARISH MEDICAL SOCIETY

At last monthly meeting of the St. Tammany Parish Medical Society was held in Covington at the courthouse on Friday, May 11, at 8 p. m.

Dr. F. F. Young, president, in the chair; Dr. L. R. Young, secretary, at his post. We had a fair attendance of regular members and were honored in having with us Drs. Lafferty, Slaughter and Berwick of Bogalusa, La., Dr. Edward McCormac of New Orleans and Dr. Herrin of Bush, La., who by the way, has applied for membership in our society.

Dr. Edward McCormac gave us a splendid paper on the prostate and seminal vesicles, supplementing it with lantern slides. The doctor, while concise, had a way of making everything clear for everyone.

Dr. J. F. Bouqui, presented an interesting clinical case in a little girl of about nine years, who had had empyema of the left side, in whom the apex beat of the heart still remained on the right side after recovery.

The president appointed a committee consisting of Drs. Gautreaux, Bouqui and Bulloch to confer with the Police Jury and School Board, relative to devising a means of examining the school children. Here Dr. Slaughter stated that by such a course, they were getting good results for the children in Washington Parish. The president appointed a committee consisting of Drs. Bulloch and Roland Young to confer with the State Representative Heintz, relative to the repeal of the State Narcotic Act and relative to opposing any chiropractic legislation.

Telegrams were announced by the president in answer to those sent by him from U. S. Senators Broussard and Ransdell and U. S. Representatives Kemp and Martin, saying they would do all they could to defeat the bill increasing the narcotic license fees and to defeat the bill requiring physicians to put in their income tax traveling expenses for scientific and research work.

Everyone was delighted to see among us our old "War-horse", Dr. A. G. Maylie, who was just up from a severe case of pneumonia and though yet very weak, he **"sneaked"** down to the meeting and gave a splendid account of his stewardship as delegate from the society. We all feel proud of his elevation to the position of councillor of the Sixth District in the State Medical Society and we all know him so well that we feel certain he will dispatch his duties with credit and thoroughness.

L. ROLAND YOUNG, M.D.,
Secretary.

NEW ORLEANS OPTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETY.

THIRD SCIENTIFIC MEETING HELD AT THE EYE, EAR, NOSE & THROAT HOSPITAL, THURSDAY, APRIL 19, 1928.

The meeting was called to order by Dr. Hume, forty-three being present. Due to the presence of our distinguished guest, Dr. Castellani, and to a large number of interesting cases the chair was immediately turned over to the chairman of the scientific meeting, Dr. C. Cox.

Dr. Castellani gave a most interesting talk on mycotic infections of the throat, entering into a general classification of mycoses. Among the many mycotic infections is tonsillomycoses, which he classified into three groups as follows: (1) Tonsillomoneliasis, (2) Tonsillohemisporosis, (3) Tonsillomycosis-spiculata. A detailed description of each clinically, symptomatologically as well as their individual microscopic morphology was given. The course and prognosis was extensively discussed, also treatment, Borax in glycerine or tincture of iodine as local applications with large doses of potassium iodide or lipoiodine internally was recommended as specific. The following formula was recommended: Sol. carbol fuchin (as used in acid fast stain) 100 c.c., boric acid gm. 1: this is boiled two hours after which 5 c.c. acetone is added and thoroughly mixed and to this is added resorcin 10 gm.

In the discussion Dr. Dimitry asked the question as to whether this affection was found in the eyes and Dr. Castellani in a long dissertation informed the society that although seldom found in this country, it is frequently seen involving the eyes of those living in the tropics, especially in Ceylon.

Dr. Blum gave a history and description of a case in which there were whiteish patches of the lids with a large cast of the upper lid involving the puncta and canaliculi apparently due to a fungus which was very persistent to treatment.

Dr. Castellani closed his paper by an elaborate demonstration of several slides showing the metamorphosis of fungi as well as the different types during rest and during proliferation and clinical pictures of lesions of the different mycoses of the tonsils. In closing Dr. Cox on behalf of the society expressed our most grateful appreciation to Dr. Castellani for giving us this most excellent and instructive talk.

Dr. Metz presented three cases of plastic surgery of the nose by means of cartilage, bone and osseo-cartilagenous grafts for deformities of

the nose. Lantern slides of the patients, before and after operation, were shown, also two of the patients. Case No. 1—That of a man who was struck across the bridge of the nose by an ice pick two years ago in which a cartilagenous graft of the ninth rib was done under local anesthesia. Case No. 2—A fracture of the nasal bones and septum from an injury produced by being struck on the nose with an 8-pound weight. A submucous was done to correct the deviation of the nose externally followed by a bone graft from the ninth rib. Case 3—An injury of the base of the nose followed by infection with osteomyelitis of the nasal bones. After the infection was controlled, an osseo-cartilagenous graft was done with excellent result. In the discussion mention was made of the excellent result obtained in the case of osteomyelitis, and Dr. Weil congratulated him on the splendid results obtained and stated that the cases showed a little lack of correction rather than over correction.

Dr. Dimitry's presentation consisted of two cases. Case 1—That of a trifacial neuralgia in which a sphenoidectomy and radical antrum was done with improvement but later followed by recurrence of the neuralgia. Injections of maxillary and ophthalmic divisions 3 months ago were followed by no improvement of the intensity of the pain although the attacks were less frequent with pain radiating to the angle of jaw. The inferior dental nerve was injected with complete recovery. In the discussion Dr. Bahn stated that although changes of the cornea took place, changes in lacrimation also took place because the nerves of lacrimation were from the second division of the trigeminal. Dr. Dimitry doubted this, stating that they were from the facial nerve, and to prove his contention he sighted the example of the disappearance of epiphora after removing the sac in chronic dachryocystitis in which the irritation of the trigeminal nerve is removed, the indirect reflex to the facial is abolished and consequently no excessive tearing because most of the tears disappear by evaporation. Dr. E. Brown reported a case of trigeminal nerve injection in which the second division was injected with no results and a subsequent injection of the ganglion with loss of the eye. He also mentioned two other cases of tic in which a hyperplastic sphenoiditis existed on the same side. Case 2—One of definite sphenoiditis with mucous membrane and bony changes associated with a definite choked disc with macula changes and blindness and confirmed by roentgen-ray in which a sphenoidectomy was done followed by disappearance of the choked disc and improvement of vision. In discussing the case Dr. Bahn stated the macula changes in such a case are due to hyaloid or degenerative products of the neuritis. In closing the discussion Dr. Dimitry mentioned the possibility of the neuritis not being toxic but due to bony changes about the optic foramen since bony changes existed in the walls of the sphenoid and suggested that a roentgen-ray of the optic foramen would be of interest. Dr. McLauren of Dallas sighted a most interesting case of iritis improved by polypoidectomy of the sphenoid in a patient with atrophic rhinitis who had previously had a radical antrum and intra-nasal ethmoidectomy with no results.

Dr. Hume presented the following case of osteoma of the nose: F. L., female, white, age 3½, was admitted to the clinic April 3, 1928. The present complaint elicited from the mother was "Complete blocking of the left nostril." This trouble was first noticed by the mother when the child was one year of age. A foul secretion accumulating in the left nostril became so troublesome that she was taken to a physician, who removed an adenoid and at the same time a polypus from the left nostril. According to the history there was but little bleeding at this operation. Five weeks later the doctor saw the patient and informed the parents that the polyp was returning. At present the child is very restless at night which the mother believes is due to mouth breathing. Her appetite is fair and she is exceptionally fond of sweets. The bowels are regular, has no cough, weight 34 pounds at present, 37 pounds three months ago. Physical examination reveals hypertrophied tonsils with mouth breathing, and a growth apparently polypoid in character presenting itself in the vestibule of the left nostril. On April 5, tonsils and adenoids were removed by Dr. Stanley in which the adenoids were found high in the pharyngeal vault. After shrinking the nose with adrenalin, two masses were removed from the left nostril for examination. They were oval in shape and approximately ¾ inch in length and ¼ inch in thickness. They were attached by small pedicles in the anterior region of the ethmoid. On exploration, the entire middle fossa of this nostril seemed filled with a hard mass covered with an apparently normal mucosa. A small space was left below that permitted the passage of a small probe into the epipharynx. Upon examining the epipharynx with the finger a hard mass was palpated, which practically closed the chonae. The operation was discontinued at this time until further study could be made of the condition. The adenoid removed with the mass from the left nostril was sent to the laboratory for microscopic study. After the patient had reacted from the operative procedure, antero-posterior, lateral and vertex-mental exposures were made. These plates and microscopic slides are here for study. Report of laboratory by Dr. Seamenn: Blood—Red cell count, 4,125,000; total white, 10,750; neutro-

phils, 45 per cent; small lymphocytes, 52 per cent; large lymphocytes 1 per cent; transitional, 1 per cent; eosinophiles 1 per cent. Microscopic slides: "There is no special pathology; the polyp is cystic, there is chronic inflammation present with normal bone tissue present within the polyp." Roentgen-ray report, by Drs. Smauels and Bowie: "Tumor of soft parts in the region of posterior nares." In the discussion Dr. Stanley quoted the case of Dr. H. B. Lemere of Omaha which was reported in the Transactions of the Omaha Society of Otolaryngology, 1927, which so closely resembles this one. The patient was an adult in whom the bony tumor of the nose involved the antrum, postnares and protruded into the orbit. It was removed by a two-stage operation under general anesthesia and found to be a dense or ivoryoid like type of tumor (not of normal bone), but of an osteoitic type. Dr. Lynch saw the case with Dr. Hume and in the discussion called attention to the tumor being in the naso-pharynx growing out of the sphenoid sinus arising from the spheno-maxillary fossa where such osteomata and fibromata occur and not from the antrum. As to treatment, surgical extirpation would necessitate complete removal of the body of the sphenoid and greater wing as well as thorough cleansing of the sphenomaxillary fossa which is impossible. As to prognosis, most probably death will occur from involvement of the Vagus Nerve.

Dr. Fuchs presented a case for diagnosis: A white man 61 years, an engineer in a sulphur factory, with sore throat of 1 year duration with tumor-like mass right tonsil and base of tongue with many leukoplakia spots of soft palate and pharynx and enlarged cervical glands. Luetic myocarditis. Lungs normal. Wasserman negative. Blood pressure subnormal. Mixed treatment as well as other anti-luetic treatment with no improvement. Diagnosis as possibilities: (1) Tuberculosis, (2) Malignancy, (3) Syphilis, (4) Phemphigus. In the discussion Dr. Lynch made a diagnosis of baso-cellulae carcinoma of slow growth with metasteses or direct extension into the cervical glands in which the lymphatics have become blocked followed by secondary edema and passive congestion with secondary necrosis simulating mucous patches, although with the characteristic hard round ring with central necrosis or softening of the tumor. He suggested microscopic examination of the tumor for confirmation.

Dr. Dunn presented a case of sympathetic ophthalmia following extraction of a pathological (traumatic) cataract confirmed by Dr. Dimitry in which a most extensive variety of therapeutics were used with improvement. The patient received vigorous treatment of soduim salicylate, gr. 120 by mouth, and some intravenously; twelve doses of Neo-salvarsan. Tonsils were removed. Then mercury and iodides as mixed treatment, injections of foreign proteid (two doses of typhoid vaccine). Several teeth removed, antrum washed several times (pus each time), and finally on giving large doses of iodides patient improved. In the discussion the cause of improvement was attributed to the treatment of the focal infection by first removing the foci of infection by surgical treatment of tonsils, teeth, and washing the antrum, and secondly by the antiseptic treatment of the blood by the above mentioned drugs.

WILLIAM A. WAGNER,
(Sect'y-Treas.)

LAFOURCHE VALLEY MEDICAL SOCIETY.

The quarterly meeting of the Lafourche Valley Medical Society was held at Thibodaux on Wednesday, May 9, at the Court House. Several physicians of New Orleans and a few of the Third District Medical Society helped to swell the number in attendance.

The reading of scientific papers seemed to have aroused a bit of interest in the membership as evidenced by the spirited discussions indulged in.

The next meeting will be held on the second Wednesday in August at Donaldsonville, La.

At the annual meeting of the Louisiana Dermatological Society, held at Baton Rouge, April 9, 1928, Dr. Ralph Hopkins of New Orleans was elected President of the Society, Dr. O. E. Denny of Carville Vice-President, and Dr. T. A. Maxwell of New Orleans Secretary-Treasurer.

Dr. H. W. E. Walther, of New Orleans, was an attendant at the fifty-third annual session of the Arkansas Medical Society last month, held in El Dorado. He read a paper on the "Conservative Management of Hydronephrosis."

Dr. Robert H. Blackman announced the removal of his offices to the Medical Arts Building, Shreveport, Louisiana.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor.

MERIDIAN MEETING.

The sixty-first annual meeting of the Mississippi State Medical Association, held at Meridian, May 8-10, was in many respects one of the best meetings in many years. The attendance—over three hundred—was much larger than is usually the case when the Association meets away from Jackson. The scientific papers presented were of an unusually high standard and out of the thirty-four listed in the program, only three were not presented. Two of these were read by title, as follows: Some of the Problems of Industrial Surgery, by Dr. David Walley, Lumberton, and Influenza, by Dr. S. E. Eason, New Albany. The paper of Dr. Isham Kimbell, formerly of Gulfport, on The Treatment of Neuro Syphilis with Special Reference to the Method of Inoculation with Malarial Blood, was not read because the author, a member of the United States Public Health Service, was ordered to another post recently.

The following is a list of papers and of those who discussed them:

Section on Surgery.

1. Sinus Disease in Its Relation to General Surgery, by G. M. Street, and discussed by Drs. Gaudet, Crawford and Street (closing).

2. Open Operation in Fracture of the Shaft of the Femur, by Dr. J. H. Rush, and discussed by Drs. Ullman, Cohn, Cully, Ewing, and Rush (closing).

3. Body Chemistry in Its Relation to Surgery, by Dr. T. P. Sparks, and discussed by Drs. Parsons, Bryan, Lippincott, Culley, and Sparks (closing).

4. Acute Osteomyelitis, by Dr. H. A. Gamble, and discussed by Drs. Gessner and Gamble (closing).

5. Direct Blood Transfusion, by Dr. E. H. Galloway, and discussed by Drs. Street, Cohn and Galloway (closing).

6. Duodenal Fistula Following Gastric Resection, by Dr. W. H. Parsons, and discussed by Dr. Ewing.

7. Acute Conditions within the Abdomen, by Dr. J. M. Acker, and discussed by Drs. Crisler, Philphot, Frizell, Hightower, Caldwell and Acker (closing).

8. Ectopic Pregnancy, by Dr. E. C. Parker, and discussed by Drs. Foster, Philpot, and Parker (closing).

9. The New Era in General Surgery, by Dr. W. H. Anderson.

10. The Use of Radium in the Treatment of Uterine Diseases, by Dr. W. W. Crawford.

11. The Use of Radium in Malignancies and Certain Gynecological Conditions, by Dr. T. W. Holmes, and the two papers jointly discussed by Drs. Sparks and Barksdale.

12. Treatment of Lung Abscesses, by Dr. S. H. Hairston, and discussed by Dr. Ewing.

13. Placenta Previa, by Dr. J. F. Lucas, and discussed by Drs. Patterson and Lucas (closing).

14. Conservation in Surgery, by Dr. J. F. Armstrong, and discussed by Drs. Johnston and Crisler.

15. Spinal Anesthesia in Major Surgery, by Dr. J. K. Avent, and discussed by Drs. Johnston, Gamble and Avent (closing).

Section on Hygiene and Public Health.

1. Training Health Workers, by M. C. Balfour, and discussed by Drs. Underwood, D. J. Williams and Balfour (closing).

2. Some Essentials in a Dental Health Program, by Dr. Wm. R. Wright, and discussed by Drs. F. M. Smith, Beacham, Brunson, Tippin, Underwood, D. J. Williams and Wright (closing).

3. Observations of Some Chronic Diseases Confronting Public Health Workers, by Dr. Wallace Sheely.

4. Standard Milk Ordinance with a Plea for Uniformity in Procedure and Active Support of the Medical Profession, by Dr. L. S. Frank, and discussed by Drs. Noblin, Galloway, Brandon, F. M. Smith and Frank (closing).

5. Food Contamination, by Dr. D. G. Rafferty, and discussed by Drs. Galloway, F. M. Smith and Rafferty (closing).

6. The Control of Tuberculosis in Mississippi, by Dr. Henry Boswell, and discussed by Drs. Anderson, Ely and Boswell (closing).

Section on Medicine.

1. The Sugar Fed Child, by Dr. Seale Harris, and discussed by Drs. Dearman and Harris (closing).

2. Staphylococcic Tracheo Bronchitis following Tonsilitis, by Dr. J. S. Ullman, and discussed by Dr. Gaudet.

3. Tuberculosis, by Dr. T. D. Bordeaux, and discussed by Drs. Anderson and Wyman.

4. The Status of Biological Preparations in Therapeutics, by Dr. O. W. Bethea, and discussed by Drs. Musser, Harris and Bethea (closing).

5. The Valves of the Heart in Action (lantern slides), by Dr. G. W. F. Rembert.

6. The Function of a Modern Hospital for Mental Diseases in Our Social Scheme, by Dr. H. E. Austin.

7. Medical Sociology, by Dr. O. N. Arrington, and discussed by Drs. Bryan and Arrington (closing).

8. A Discussion of the Psychoneuroses: A Neglected Field in Medicine, by Dr. W. A. Dearman, and discussed by Dr. Little.

9. The Problems of Uremia, by Dr. J. H. Musser, and discussed by Drs. Dearman, Crawford, Lippincott and Musser (closing).

The special sections on Radiology and Eye, Ear, Nose and Throat, while not run as a part of the regular program, were well attended and maintained a standard quite as high as that of the regular program.

The East Mississippi Medical Society proved itself to be an excellent and attentive host both in the matter of providing facilities for the work of the convention and in the matter of entertaining the delegates to the convention.

The Fraternal Delegate from Louisiana, Dr. S. M. Blackshear, brought an invitation from the Louisiana State Society to the Mississippi State Medical Association to meet jointly and simultaneously with the former in New Orleans next year at which time it will celebrate its fiftieth anniversary. Because of the fact that it would be necessary to make a change in the By-Laws to arrange for this change in date it was decided that it would be better to forego the pleasure that would be afforded by the meeting in New Orleans.

MISSISSIPPI STATE MEDICAL ASSOCIATION.

TRANSACTIONS OF THE 1928 HOUSE OF DELEGATES.

The twenty-fifth annual session of the House of Delegates of the Mississippi State Medical Association met in the Elks Club, Meridian, May 8, 1928, at 8:05 a. m., with President John Darrington of Yazoo City in the chair. Roll call showed twenty-one members present.

Albert Hand of Shubuta was selected a member of the Committee on Budget and Finance to succeed Geo. E. Adkins, whose term had expired.

At this point a recess of five minutes was had to permit the Councillor Districts to select members of the Nominating Committee, the selctions resulting as follows:

First District—J. W. Lucas, Moorhead.
Second District—S. E. Eason, New Albany.
Third District—V. B. Philpot, Houston.
Fourth District—No selection.
Fifth District—L. S. Lippincott.
Sixth District—I. W. Cooper, Meridian.
Seventh District—Henry Boswell, Sanatorium.
Eighth District—J. W. D. Dicks, Natchez.
Ninth District—W. A. Dearman, Gulfport.

The Secretary made the following report, which was adopted:

To the House of Delegates, Mississippi State Medical Association,

Meridian, Miss.

Gentlemen:

It is with a deep sense of personal and associational loss that I report to you the death of our Treasurer, ex-President J. M. Buchanan of Meridian, on August 5th, 1927. Dr. Buchanan served the Association for many years as Treasurer and without salary. A suitable floral design was sent in the name of the Association.

President John Darrington appointed Dr. I. W. Cooper of Meridian as Acting Treasurer pending the meeting of the House of Delegates. Dr. Cooper immediately made bond in the sum of ten thousand dollars, the accounts of Treasurer Buchanan were audited by the Budget and Finance Committee, and the funds of the Association turned over to the new Treasurer.

Acting upon the authorization of the Council and the House of Delegates in 1927 the counties of Issaquena, Sharkey and Warren asked for a charter under the hyphenated name of the Issaquena-Sharkey-Warren County Medical Society. Charters wre authorized for several other groups of counties but this was the only one asking that a charter be issued.

Respectfully submittted,

T. M. DYE, Secretary.

May 10, 1928.

Acting Treasurer I. W. Cooper read his financial report, which was automatically referred to the Committee on Budget and Finance.

The Committee on Arrangements made a detailed report of the plans and arrangements for the entertainment of the Association for the three days.

The Committee on Necrology made its report after the reading of which the members of the House stood in silence with bowed heads for one minute out of respect to our honored dead.

A proposition submitted by the New Orleans Medical and Surgical Journal proposing to furnish the Association with subscriptions at ninety cents a year for two years was accepted.

On motion adjournment was had until 8:30 Wednesday morning.

Pursuant to adjournment the House of Delegates reconvened at 8:30 Wednesday morning, May 9th, President Darrington presiding. Roll call showed thirty-four present.

Mrs. D. J. Williams of the Woman's Auxiliary made a detailed report of the expenditure of the money given the Auxiliary by the Association for flood relief. To this report was attached a check for $120.36, being the amount of the contribution that was unused. The House accepted the report of the Auxiliary but returned the check with the request that it be used in whatever way the Auxiliary saw fit.

E. F. Howard, who was a committee of one appointed a year ago to distribute a thousand dollars of the Association's funds among the medical flood sufferers, made an exhaustive report of his work. For obvious reasons this report detailing names will not be published, but it was clear to the House of Delegates that the funds had been used in a most intelligent and humanitarian way, and Dr. Howard was thanked for this great work of love.

The Committee on Public Policy and Legislation made a report which was adopted; whereupon the House adjourned to meet immediately upon adjournment of the final session of the Scientific Session.

The House met in final session at 10:15 Thursday morning, May 10, President John Darrington presiding. Roll call showed fifty-eight present.

The Committee on Budget and Finance made its report through E. F. Howard, as follows:

We, your Committee on Budget and Finance, have examined the report of the Treasurer, the financial report of the Secretary, and the report of the Committees on Flood Relief, and find same correct and expenditures duly attested by proper vouchers.

We recommend the attached estimate of $2,200.00 as the budget for 1928-29:

President's expense	$100.00
Reportorial	250.00
Council	100.00
Secretary's salary and expense	600.00
N. O. M. & S. Journal	1,000.00
Transactions	100.00
Incidentals	50.00
Total	$2,200.00

We recommend that the following bills be allowed:

Commission on Public Policy and Legislation	$498.36
Councillor Frizell	4.50
Councillor Jones	16.25

We call your attention to the fact that the expenses of the Association are greater than its income. There is at presence a comfortable balance in both the General and the Medico-Legal Funds. This latter will probably be maintained satisfactorily, but that of the General Fund is steadily growing less. In order that this may be checked before we are faced by an empty treasury, we recommend increasing the dues to five dollars: one dollar to be applied to the Defense Fund and four dollars to the General Fund. This is a small tax as compared to most State Associations, but will furnish sufficient funds to enable the Association to operate much more efficiently than it has done in the past.

Respectfully submitted,

E. F. HOWARD,
W. L. LITTLE,
For the Committee.

On motion of W. A. Dearman, the House expressed a vote of thanks to the East Mississippi Medical Society, host of the Association, and to the City of Meridian, for their splendid hospitality and entertainment.

D. W. Jones and D. J. Williams introduced the following proposed change to the By-Laws:

"Change Section 1, Chapter X of the By-Laws to read in part as follows:

'Section 1. An assessment of four dollars ($4.00) per capita on the membership of the component societies is hereby made the annual dues of this Association, one dollar of which shall be set aside and used exclusively as a Medico-Legal Fund.'"

The Council through its Secretary made the following report which was adopted:

The Council met in special called session at 7:00 p. m., May 7th, in room 400 Lamar Hotel, Meridian. Present: Chairman Williams, Secretary Jones, Councillors Frizell, Lucas, Holmes, and Robertson. Messages were received from Councillors Gill and Donaldson explaining their abscences.

The Council proceeded to act upon applications for aid in law suits against the following members: G. S. Bryan, Amory; P. R. Graves, Jackson; T. E. Hewitt, Summit; L. D. Dickerson, McComb (two cases); W. W. McRae, Corinth; S. H. Hairston, Meridian.

These members all being in good standing in the Association at the time the suits were filed, and the Executive Committee having approved the defense in each case, the Council as a whole endorsed the arrangements, and ordered checks issued to all except McRae and Hairston, whose cases are yet unfinished. The cases of the first

four were prosecuted to a finish with complete vindication of each of the doctors, the plaintiffs being taxed with the costs of court in each case.

Reports of the Councillors from the several districts were received and filed, with their expense accounts. Conditions were satisfactory in general.

In the matter of organization it is again suggested that Claiborne County be urged to get into some live organization, preferably the Issaquena-Sharkey-Warren County Society. Hancock County was given permission to come into the Harrison-Stone Society. The following societies were ordered to get new charters immediately: Central, South Mississippi, East Mississippi, Tri-County, and Northeast Mississippi Thirteen.

The Nominating Committee reported the following nominees:

For President: W. H. Frizell, Brookhaven; W. H. Anderson, Booneville; H. A. Gamble, Greenville.

For Vice-Presidents: J. H. Rush, Meridian; T. W. Reagan, Union; T. E. Ross, Jr., Hattiesburg.

Secretary: T. M. Dye, Clarksdale.

Treasurer: I. W. Cooper, Meridian.

Councillor, Eighth District: J. W. D. Dicks, Natchez.

Councillor, Ninth District: Daniel J. Williams, Gulfport.

Delegate A. M. A.: John Darrington, Yazoo City.

Fraternal Delegate to the Arkansas State Medical Society: C. W. Patterson, Rosedale; Tennessee: A. J. Ware, Greenville; Alabama: J. W. Lipscomb, Columbus; Louisiana: John C. Cully, Oxford.

The balloting for President resulted in the election of W. H. Frizell of Brookhaven, and President Darrington declared him elected On motion the President cast the vote of the House for the remaining nominees.

D. J. Williams placed Gulfport in nomination as the meeting place for 1929, and it was selected by acclamation, whereupon the House adjourned to meet in Gulfport May 14, 1929.

(Signed) T. M. Dye, Secretary.

The May meeting of the Vicksburg Sanitarium was held on the 12th and the following cases were discussed:

1. Abscess of the Lung, Dr. G. M. Street.

2. Carcinoma of the Stomach — Resection, Polya Operation," Dr. A. Street.

3. Acute Pleurisy, Relived by Diathermy, Dr. L. J. Clark.

4. Value of Ultra Violet Radiations Following Sinus Operations," Dr. E. H. Jones.

Dr. J. A. Rayburn, Ecru, Mississippi, has been appointed by Governor Bilbo to succeed Dr. J. C. McNair as Superintendent of the Natchez Hospital, and Dr. A. J. Podesta has been appointed by the Governor to succeed Dr. Sidney Johnston as Superintendent of the State Charity Hospital in Vicksburg.

NEGRO QUACKS.

A bill has been introduced in the Lower House by Representative L. O. Murphy of Perry County, which, we believe, will absolutely eliminate such quackery from the state as is being practiced by the negro quack, Redmond, and others of his type who are now imposing upon the credulity of the uninformed. We feel that it is a reflection upon the citizenship of any community to permit practices of the character carried out by the negro Redmond in Covington County to exist.

He is doing about the same thing that the Indian medicine man did two hundred years ago. The poor Indians could do no better, it was the ignorant medicine man or nothing for them. It is inconceivable that in this day of enlightenment and progress that hundreds of people would daily visit the hut of an ignorant, cornfield, southern "nigger," who dispenses concoctions declared by the State Chemist of Mississippi to be of no medical value whatever and found upon examination in the Hygienic Laboratory of the State Board of Health to be dangerous in that they contain colon bacillus. The situation is intolerable to all right-thinking people. The old humbug, Isaiah, of New Orleans levee fame, in his best days had nothing on this Louisiana negro. It is believed that the condition would have been promptly corrected but for the fact that certain white people working with the negro were profiting financially in the deal.

EXAMINATION FOR LICENSE.

The Mississippi State Board of Health will hold its regular annual examination for license to practice June 21, and 22. This examination will be held in the New Capitol at Jackson, Mississippi. The applicants must make application be-

fore the first day of the examination, and must either send or bring their diplomas or certificates for verification.

Dr. C. D. Barkley and Dr. Wm. F. Hand announce the recent opening of an infirmary at State Line, Mississippi. This infirmary has a twenty-five bed capacity to care for medical and surgical cases.

Dr. J. A. Tabor of Pascagoula, Mississippi, died at the Piedmont Hospital in Atlanta, Georgia, on March 7, 1928. Dr. Tabor was a graduate of Tulane Medical School. He was fifty-eight years old and had practiced for thirty years in Pascagoula.

THE PRESIDENT OF THE STATE ASSOCIATION.

Dr. W. H. Frizell is the son of the late Dr. W. H. Frizell and Mary Hardwick Horton, daughter of Dr. Stephen Horton, of Georgia. The senior Dr. Frizell was a graduate of the New Orleans School of Medicine, now Tulane. He served as Lieutenant and Surgeon in the 12th Mississippi Regiment, C. S. A., and was one of the immortal six hundred who were confined in Charleston, South Carolina, prison in 1865. After the war he practiced for forty-two years at Poplar Creek, Mississippi, where the subject of this sketch was born in July, 1872.

Dr. Frizell received his schooling in the Academy of his native village under the tutelage of the late Dr. J. W. Armstrong. His medical education was had at the University of Nashville. He was graduated from that old institution in March, 1897. In 1901 he received a certificate from the New York Polyclinic in Medicine and Surgery. He practiced at his home village, Poplar Creek, Mississippi, until 1901, when he located in Brookhaven, where he has since lived. He has been County Health Officer of Lincoln County for the greater part of the past twenty years. He served for many years as Secretary of the Tri-County Medical Society, and later as President of that Society.

For several years he has represented the Eighth District in the Council. He is a member of the Southern Medical and American Medical Associations. He has been a member of the medical and surgical staff of the Kings Daughters' Hospital in Brookhaven since its organization.

The Association is fortunate in having another strong man and good organizer for its leader.

The "Journal" offers Dr. Frizell its good wishes and stands ready to aid his administration in any way possible.

A LETTER FROM THE PRESIDENT

To the Medical Profession of Mississippi:

I wish to express to you my heartfelt appreciation for the honor conferred upon me at the Meridian meeting, when you saw fit to make me the standard bearer for our profession during the ensuing year.

Your choosing me over two of our most prominent and popular men in the profession makes me doubly grateful to you for this unsolicited honor.

I have had no time yet to outline the policies of this administration, but may I add that I shall at all times use all my energies to uphold the traditions of the profession and the work and usefulness of the State Board of Health?

It will be my purpose to lend what help I can toward the fostering of our small, as well as larger, hospitals in the State. By this means we may confer the greatest good on the greatest number of our unfortunate citizens who are worthy of institutional treatment.

May I have your undivided assistance in keeping up the good work of my predecessors to the end that I may merit the honor and confidence reposed in me by you?

Fraternally,

(Signed) W. H. FRIZELL.

462

BOOK REVIEWS

Pathological Physiology of Internal Diseases: By Albion Walter Hewlett, M. D., B. S. New York and London, D. Appleton and Company. 1928. pp. 787.

Nine of the colleagues of the late Dr. Hewlett have revised this splendid book of his from their own collections and from the notes which Dr. Hewlett left for changes that he wished to have made in a new edition. The result has been the bringing up to date of a book which is one of the outstanding contributions by an American to medical literature, and which has for some years now been one of the standbys for students and instructors who have been interested in seeking for knowledge of the why and the wherefore. For ready reference the book is valuable, for more deeper study leads are given by very excellent bibliographies at the end of each chapter.

One of the interesting features of pathological physiology is the amount of knowledge that has been obtained concerning the heart, and this may be shown by consulting the number of pages given to the several systems. Over 129 pages are devoted to the circulation, 67 pages to digestion, almost 50 to metabolism, to the kidney 48 pages, to the other systems varying pages have been assigned by the original author and his subsequent collaborators, but to none of the chapters is there devoted as many pages as those given to the heart and circulation.

The death of Dr. Hewlett was a blow to American medicine, one of our outstanding teachers and investigators he did much to advance our knowledge of disturbed physiology. Fortunately his great work is to be kept alive. The unselfish devotion to his memory by his colleagues is a wonderful tribute to the man, a tribute which the rest of the profession can well join.

J. H. MUSSER, M. D.

Local Anesthesia: By Geza de Takets, M. D., M. S., with a foreword by Allen B. Kanavel, A. B., M. D. D. Sc. Phil., W. B. Saunders Co. 1928. pp. 221.

This book shows in its preface that the majority of the data was acquired from standard books on local analgesia. These have been abstracted to the extent that a handy and quick reference is the result. The author has omitted the use of proper names prefixed to methods of procedure which in itself diminishes much discussion. The text is splendid to teach undergraduates the fundamentals of local analgesia.

EMILE BLOCH, M. D.

Pharmacotherapeutics, Materia Medica and Drug Action: By Solomon Solis Cohen, M. D. and Thomas Stotesbury Guthrie, M. D. New York, D. Appleton & Co. 1928. pp. 2009.

This book of 1900 pages written by men experts, one on research and the other on practice—is worthy of the age in which it is produced. Here are gathered therapeutic agents of all kinds not only those whose effects have been well established by experiments but those whose claims are empirical. Vaccines, bacterines, serums, antiseptics, vitamins, endocrines and radioactive agents are included.

The reviewer is conscious of the fact that he cannot do full justice to a work of this kind after a short study but he hopes to interest others by giving the vivid impression left from its perusal. The work is suited to student and graduate alike—it is clear, thorough and well presented. Drugs of the U. S. P., Br. P., N. F., N. & N. O. R. are well described.

The book is not a collection of facts only, but throughout it all the *Philosophy, the why and wherefore,* binds it all into a very assimilable whole. The reader is impressed with the fact that "experience is the chart but the doctor must be the pilot". He must work with nature and study what nature does. The wide knowledge of the authors invites practical applications by giving the reader a clear insight as to just what a drug will do, The characteristic feature of the study not of anatomical pathology so much, as the functional pathology, and attention is drawn to the effect of drugs in health and disease. Physiology, pathology and physiochemistry must be combined to complete our studies.

Besides this complete study to guide us " to do good and do no harm" the reader's attention is called to the following additional feature: a comfortable index; table of percentage solutions; the measure of a drop of different drugs; and incompatibles clearly set out.

NARCISSE THIBERGE, M. D.

A Text Book of Practical Therapeutics: By Hobart Amory Hare, B. Sc., M. D. Illus. 20th ed. Philadelphia, Sea and Felinger, 1927. pp. 1094.

This is a 20th edition of an old standard text book. It has been completely rewritten and revised. It is a comprehensive treatment of a most important branch of medicine and should certainly serve as an excellent and reliable reference on this subject. Most of the most modern treatments and methods are discussed.

I. L. ROBBINS, M. D.

High Frequency Practice: By Burton Baker Grover, M. D. Fifth Edition. Kansas City Election Press. 1928. pp. 632.

The fifth edition of High Frequency Practice, by Burton Baker Grover, M. D., is a most complete treatise on this subject. The author, although he gives his own observations and experiences, is frankly honest in his opinions. Where his experience is lacking, he quotes from those who have had the opportunity of observing a series of cases in a specialty of the art. The book is one that must be read through to be appreciated, yet no one unless he were vitally interested in physical therapy would attempt to do so. Any one studying this branch of medicine is necessarily interested in high frequency electrical treatments and their application. One is struck with a monotony in the description of the treatments, if he neglects to avail himself of the authors interpretation of the physiology and pathology back of the conditions being treated. On pages 132 and 133 he aptly states the position of the science when he says that there are still many unexplained results which follow the use of currents of different frequencies, yet these findings are being observed with a most critical eye and with instruments of precision. There has been much already done and more can be looked for in the near future. And again he states that among other things, one of the greatest difficulties is in focusing heat in a body, not homogeneous in character. The entire work when analyzed awakens one to the realization that many of us do not know physical therapy; that there is more to the application of the electrodes than in a rule-of-thumb manner, with the necessary turning on of a switch and letting the technician watch the case thereafter; to the necessity of not having the case treated in the identical manner, daily or twice weekly, as is now too prevalent a practice. He stresses the fact that milder and fewer treatments often are rapidly effective, and that one must be on the alert to note the changing conditions, an indication of the alteration of the treatment. In his chapters on "Blood Pressure", and "Diseases of the Cardiovascular System" he most emphatically impresses one with the possibility of there being a different conception of the physiology and even the pathology of dysfunctions. These chapters are especially well worth the reading, to learn from a pioneer his conception of the significance of blood pressure and his interpretation of the findings. This is a record of the result of a wealth of clinical observation, gleaned without the influence of orthodox therapy, yet stated fearlessly from the viewpoint of one whose results appear better than the vast majority of present day therapists, what he thinks is wrong, and how it can be best treated by the high frequency electric current. No one can read these chapters without having a better knowledge of blood pressure, its normal limits and normal range of variations, and the significance of such pathological deviations as are noted. Grover is however like Galvini, that early worker in the application of electricity, who was scorned and derisively termed "The Frog's Dancing Master", and like Bessemer of the steel industry. Those who should be the most interested are not. In Bessemer's case, his paper dealing with a new process of steel making, when read at a convention was voted stricken from the records because the assembly though they would be ridiculed for even having listened to such advice and such a paper. There are a majority today in the medical profession who look upon this work of Grover's as did those of the steel industry in the recent past, but the Bessemer steel process is an established thing today. When high frequency electric current applications will be understood as Grover understands them, they too will become an established therapeutic agent, not in the hands of everyone, but in those of the trained specialist.

WILLIAM A. LURIE, M. D.

Safeguarded Thyroidectomy and Thyroid Surgery: By C. C. Miller, M. D. Philadelphia, F. A. Davis Co. 1928. pp. 261.

As the author rightly says, many good books are available upon the thyroid; unfortunately, this book does not fall in this category.

The many operations advocated for the cure of exopthalmos have long been discarded as unsatisfactory. Also, the various tests recommended to confirm the diagnosis of hyperthyroidism have been discarded as unnecessary and probably harmful to the patient.

The chapter on focal infection is timely; however, the treatment of diseased tonsils and teeth should be done by those specially prepared and not by the general surgeon.

A few misleading and illogical statements are found; for instance, "adequately informed any surgeon who is fairly experienced in general surgery can do his first goiter operation just as safely as he can do his five-hundreth".

This work cannot be conscientiously referred to the student as a text or to the young surgeon as a practical guide as throughout the author tries to convey the impression that the "surgery of goiter is very easy and very safe where the operator is adequately informed". Any surgeon who has had any experience with thyroid surgery knows that at best, the entire procedure is fraught with many difficulties and dangers and is anything but safe and easy, even though all the precautionary measures of "Safeguarded Thyroidectomy" have been employed.

PAUL G. LACROIX, M. D.

Abdominal Surgery of Children: By L. E. Barrington-Ward. London, Oxford Univ. Press. 1928. pp. 283.

This book written to cover abdominal surgery in children, has a worthy place in medical literature. As the author has said, "Adults may be treated safely as a child but the converse can lead to disaster." Though the subject matter is not new it is well presented. The opening chapter dealing with general principles suggests that the surgeon should understand temperament and must be able to interpret physical signs and be aware that conditions in adults may occur in the child as well as specific diseases of childhood. The general principles of operation are the same as found in any modern text, though the subject of ketosis (acidosis) is dealt with pre- and post-operatively, differentiating from the cyclic vomiting and volvulus of the small intestine, the conditions of the abdominal wall including affections about the umbilicus; all types of herniae, imperfectly descended testes are described at length. No mention is made of the inguinal route of operation for femoral hernia. The peritoneum is discussed at length as to peritonitis, cause, port of entrance, signs and symptoms.

Pneumococcal and gonococcal peritonitis are treated by the author with laparotomy and drainage which seems rather drastic. Chapter five deals with abdominal tuberculosis with subdivision into peritonitis, adenitis and enteritis with regard to diagnosis, treatment, and in the peritoneal type, complications.

The subject of congenital pyloric stenosis is gone into thoroughly from the surgical aspect. Stomach and duodenal ulcers in children are more frequent than commonly expected. The latter, more frequent in the acute form, is met with by the onset of serious hemorrhage. Chronic ulcers are overlooked as the diagnostician is not alert. The conclusion of the chapter is on congenital obstruction of the duodenum, varieties as to cause, clinical features, differential diagnosis and treatment.

The subject of the vermiform appendix is treated as in any other surgical text as to clinical features, diagnosis and treatment, prognosis and complications.

Chapter eight deals with the gall bladder and pancreas briefly and the subject of the spleen at length in a very systematic manner. Intestinal obstruction of the small bowel with its division of congenital and acquired (as from adhesive bands) internal herniation, etc., are gone into at length. Intussusception mostly a condition of the large intestine is taken up in like manner. Intestinal neoplasms are discussed in brief at the end of this chapter. Meckel's diverticulum is preceded by the embryology of the intestine, which subject is briefly stated, to the point and well grouped. The former subject with its peculiarities is discussed at length. The concluding chapters deal with Hirschsprung's disease, tumors and cysts of mesentery and retroperitoneum. As previously stated the book is well written with splendid references and should be an adjunct to pediatrician as well as surgeon.

EMILE BLOCH, M. D.

Physical Diagnosis: Charles Phillips Emerson, A. B., M. D. Philadelphia and London, J. B. Lippincott Company, 1928. pp. 553.

Various publications that have to do with physical diagnosis vary widely in the manner of presentation of this extremely important subject. Of all the text books of medicine devoted to various phases under the broad term of medicine, applied as well to the ancillary sciences, there is probably a greater amount of difference in those that are written for the students who are learning physical diagnosis than any other type of text book. In this present volume Dr. Emerson has a book which presents the subject in still another way than its predecessors. Emerson devotes the greater part of the present volume to information derived by and based upon inspection. It naturally follows that because of the relatively few visible conditions which can be accurately described or illustrated, resource must be had to a description of a large number of skin lesions. The first impression one gets is that there is a tremendous disproportion between the number of pages and the number of illustrations devoted to skin disorders, as contrasted to the amount of space that is given to the examination of the nervous system, for example. This does not imply that the description of skin lesions is out of place, but it does seem as if more space should be given to the explanation of the physical conditions responsible for physical signs rather than devoting so much of the allotted space to a work which would be more fittingly incorporated in a dermatological manual. However, this section of the book seems to be the most valuable. Some of the material in the sections devoted to disorders of the thorax offer grounds for controversy and with which the reviewer is by no means fully in accord.

The book is magnificently illustrated, the illustrations for the most part coming from the Indiana University Department of Illustrations. Of course typical and exaggerated examples are picked out to serve as illustrations. Some of these are so exaggerated that they might well give the student a totally distorted conception of what they intend to illustrate.

The above remarks may seem like carping criticism. The good points of the book have not been accentuated. Suffice it to say that these are so many that it would be impossible to enumerate them all.

J. H. MUSSER, M. D.

Appendicitis: By H. A. Royster, A. B., M. D. New York, D. Appleton & Co. 1927. (Surgical monographs.) pp. 370.

The author has presented this subject very ably and admirably. His volume is practically a modern classic on this disease. The book is replete with very interesting case histories and observations from wonderful personal experiences. Each phase of the subject is exhaustively and profoundly discussed in a most interesting manner. Instructive and authoritative quotations are liberally presented. In presenting this volume to the profession the author has delved very deeply into the literature of the subject from its incipiency up to the present. It appears that there is scarcely an article written on the disease which he has failed to consider.

The author's style and simplicity in presentation and expressions makes the book inviting and easy to read. In addition to discussing appendicitis in general he devotes an entire chapter to the disease as found in children. The very interesting phase in this chapter, perhaps, is the matter of differential diagnosis. It is not an easy matter to make a diagnosis of this disease. The several interesting points given to make the diagnosis in children easier are apparently practical.

FRANK L. LORIA, M. D.

Diseases of the Eye: By Charles H. May, M. D. New York, William Wood & Co. 1927. pp. 445.

Very few persons have the ability to separate the important from the unimportant, and still fewer can simplify a difficult subject. That is why this book has been read and purchased by more persons than any other text book on ophthalmology ever written. For the specialist it does not contain sufficient detail, but for the general practitioner and the medical student it contains a wonderful fund of useful information, with few or no technical errors, and above all is very readable.

These of course have been made possible in the course of many revisions and additions by the author who has made this practical simple volume one of his life's ideals.

The first section tells about the examination of the eye. Although the sequence of the author is not that which is best adapted to my personal needs, this is no reflection on either of us. The illustrations do not contain the most modern equipment, which change would be more in keeping with the rest of the volume. Unless my memory serves me wrong, the argant burner which is pictured was relagated to the dim and distant past some twenty years ago, as was the model of ophthalmometer illustrated.

In the chapter devoted to conjunctiva one is impressed by the rather frequent use of the copper sulphate stick and by the absence of foreign protein therapy in the treatment of gonorrheal conjunctivitis. Following the removal of foreign bodies in the cornea I believe it is better practice to cover the eye than to use frequent boric acid irrigations as recommended by the author. Apparently the end result is the same with either method of treatment.

In a small volume on diseases of the eye written essentially for the medical student and general practitioner one does not find any discussion or even mention of the newer and experimental methods of treatment such as physiotherapy and others; this is hardly to be expected because the methods mentioned in such a volume must have been generally accepted for some years.

I congratulate Dr. May upon this very excellent, understandable book, which it is to be hoped will go through many more editions.

CHAS. A. BAHN, M. D.

Pneumothorax and Surgical Treatment of Pulmonary Tuberculosis: By Clive Riviere, M. D., Lond. F. R. C. P. 2d ed. London, Oxford University Press. 1927. pp. 311.

The monograph, which is excellently written, deals largely with the pneumothorax treatment in pulmonary tuberculosis. The work is clearly and concisely written, giving first a brief but excellent historical resumé of the surgical treatment of pulmonary tuberculosis. Definite indications for the employment of pneumothorax therapy are given, as well as an accurate description of the technic employed. The author prefers to employ small amounts of gas, following which larger amounts are injected, so that relatively high positive pressures are obtained. An outline of the general treatment of the patient, during the employment of a pneumothorax therapy, is given. The accidents and complications occurring either immediately after, during, or, sometimes, later are discussed in detail. Of the more radical surgical procedures operations on the phrenic nerve, extrapleural pneumolysis, and thoracoplasties are considered rather briefly. The work is illustrated by means of characteristic roentgenograms. It is an excellent resumé of the pneumothorax therapy in pulmonary tuberculosis, as well as a brief resumé of the more radical surgical procedures.

ALTON OCHSNER, M. D.

The Peaks of Medical History: By Charles L. Dana, A. M., M. D., LL. D. New York, Paul B. Hoeber. 1928. pp. 105.

The second edition of a splendidly written series of historical essays, one might almost say historical novellettes, so aptly drawn are the characters and so thrilling are the plots.

J. H. MUSSER, M. D.

Gynecology for Nurses: By Harry Sturgeon Crossen, M. D., F. A. C. S. St. Louis, C. V. Mosby Co. 1927. Pl. illus. pp. 281.

The contents in Gynecology for Nurses of Dr. Crossen is well outlined in the preface of this book.

It begins with a general brief survey of the anatomy and physiology of gynecologic diseases and of methods employed in gynecologic examination, diagnosis and treatment, operative and unoperative.

The second part deals in detail with gynecologic nursing, methods of preparation for examination, preparation of supplies for operation, duties and position of nurses in assisting and handling supplies during operation for abdominal and vaginal work, pre-operative and post-operative nursing and care.

The book is excellently illustrated.

ADOLPH JACOBS, M. D.

Aluminum Compounds in Food: By Ernest Ellsworth Smith, Ph. D., M. D. New York, Paul B. Hoeber, Inc. 1928. pp. 378.

A compilation of all that has been written up to the present time on aluminum in relation to diet, applied obviously for the most part to a study of baking powder.

J. H. MUSSER, M. D.

PUBLICATIONS RECEIVED.

Williams & Wilkins Company, Baltimore: Filterable Viruses, by various authors, edited by Thomas M. Rivers.

F. A. Davis Company, Philadelphia: Ultra-Violet Rays, by Arnold Lorand, M. D. Studies in the Psychology of Sex, Volume VII, by Havelock Ellis.

W. B. Saunders Company, Philadelphia and London: Gonococcal Urethritis in the Male, by P. S. Pelouze, M. D. The Principles and Practice of Obstetrics, by Joseph B. DeLee, A. M., M. D., fifth edition. A Text-Book of General Bacteriology, by Edwin O. Jordan, Ph. D.

Oxford University Press, New York: The Mind of the Growing Child, edited by Viscountess Erleigh.

U. S. Government Printing Office, Washington: The Medical Department of the United States Army in the World War, Volume IX, Communicable and other Diseases.

Miscellaneous: Certified Milk, Proceedings of A. A. M. M. C., C. M. P. A. A., C. M. M. C. & M. M. M. P., 1927. The Healers, by B. Liber.

Paul B. Hoeber, New York: New York Academy of Medicine Lectures.

REPRINTS.

Uretheral Calculus, by Winfield Scott Pugh, New York. Concerning Two Options in Dilution Egg Counting: Small Drop and Displacement, by Norman R. Stoll, Sc. D. and Walter C. Hausheer, M. D., Accuracy in the Dilution Egg Counting Method, by Norman R. Stoll, Sc. D., and Walter C. Hausheer, M. D. Evaluation of the Methods of Stoll and Lane in Light Hookworm Infections, and Accuracy in Diagnosis of the Willis Floatation Method, by W. C. Hausheer, M. D., and C. A. Herrick, Sc. D., and A. S. Pearse, Ph. D. Comparison of Stoll and Lane Egg-Count Methods for the Estimation of Hookworm Infestation, by Fred L. Soper, M. D. Studies on the Rate of Development and Viability of the Eggs of Ascaris lumbricoides and Trichuris trichiura Under Field Conditions, by Harold W. Brown. Are Ascaris Lumbricoides and Ascaris Suilla Identical? by Fred C. Caldwell and Elfreda L. Caldwell. An Experimental Study of the Development of Ancylostoma Caninum in Normal and Abnormal Hosts by J. Allen Scott, D. Sc. The Effect of Carbon Tetrachloride and Alcohol on the Acid-Base Balance of the Blood, by Paul D. Lamson and Raymond Wing. A Quantitative Study of Infections with Ancylostoma Caninum in Dogs, by C. A. Herrick. Vital Capacity of Negro Race, by W. G. Smillie, M. D. and D. L. Augustine, Sc. D. The Prevention and Treatment of Carbon Tetrachloride Intoxication, by P. D. Lamson, M. D.; A. S. Minot, Ph. D. and B. H. Robbins, M. S. The Effect of Sea-Water on the Development of Hookworm Ova and Larvae, by Fred C. Caldwell and Elfreda L. Caldwell. Hookworm Infestation in an Unsanitated District, after an Intensive Treatment Campaign, by Rolla B. Hill. A Study of the Regularity of Egg-Production of Ascaris Lumbricoides, Necator Americanus and Trichuris Trichiura, by H. W. Brown. A Dilution-Flotation Technic for Counting Hookworm Ova in Field Surveys, by Fred C. Caldwell, M. D. and Elfreda L. Caldwell, S. B. The Relation of the Type of Soils of Alabama to the Distribution of Hookworm Disease, by Donald L. Augustine, Sc. D. and Wilson G. Smillie, M. D. Hookworm Infestation and Reinfestation in Ceylon, A Study of High Incidence with a Moderate Degree of Infestation, by J. Frank Docherty, M. D. The Place of the Smear in Hookworm Diagnosis, by W. C. Hausheer, M. D. and C. A. Herrick, Sc. D. Early Cirrhosis of the Liver Produced in Dogs by Carbon Tetrachloride, by Paul D. Lamson and Raymond Wing. The Estimation of the Number of Hookworms Harbored, by the Use of the Dilution Egg Count Method, by Rolla B. Hill, M. D. Hookworm Reinfestation for Three Years after Treatment in a Sanitated Area in Porto Rico, and its Bearing on Permanent Hookworm Control in the Group Studied, by Rolla B. Hill, M. D. Blood Fibrin and Levulose Tolerance in Acute and Chronic Carbon Tetrachloride Intoxication, by Paul D. Lamson and Raymond Wing.

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